



February 24, 2020

TO: All Plan Holders

RE: HCPS Roye-Williams Elementary School – HVAC Systemic / Plumbing Renovation (CAG 20-1)

Please find the enclosed Addendum 1 dated February 24, 2020. Addendum 1 consists of the following:

1. Drawing Revisions
2. Specification Revisions
3. Drawings: S104, M601, M602, P204, P301, P302, E203, E204, E205, E206, E304A
4. Specifications: 003000, 015300, 088000, 101400 (model diagram only), 263213
5. Pre-Bid Meeting Sign In Sheet

The last page shall read “END OF ADDENDUM 1”. Please advise this office immediately if any attachments are missing.

Enclosures

cc: Chuck Grebe; HCPS

BURDETTE KOEHLER MURPHY & ASSOCIATES  
6300 BLAIR HILL LANE SUITE 400  
BALTIMORE, MARYLAND 21209  
410-323-0600

**ADDENDUM 1**  
FEBRUARY 24, 2020

The following revisions are made to the original bid documents. This addendum forms a part of the Contract Documents and modifies the Original Bidding Documents as noted. Acknowledge receipt of this Addendum in the space provided on the Bid Form, where applicable.

**CHANGES TO DRAWINGS**

- C101: Add General Note 8 to read as follows: “All plans shall adhere to Harford County standard specifications.”
- S001: Revise Basis of Design Equipment Load for VRF-8 to read as follows “VRF-8 – 2000 lbs, length 10.66’ x width 2.5’”.
- S104: Replace previously issued drawing with the attached.
- A104: Add wall type 2.13 in east corner of Storage 407 directly behind the corridor water cooler. Wall shall extend approximately 2’-6” in length (full length of wall behind water cooler) and shall be used as a chase for plumbing piping serving water cooler and adjacent toilet room.
- M202 & M204: Extend 10x6 conditioned outside air duct from 10x10 duct main in Library 418 to a type ‘A’ air device in Storage 407. Balance air device to 50 CFM.
- M206, M208 & M303: Add VRF terminal unit 9-15 in Storage 407. Extend refrigerant piping from heat recovery unit HR-9-3. Heat recovery unit HR-9-3 shall be 4 port type in lieu of 2 port type.
- M601: Replace previously issued drawing with the attached.
- M602: Replace previously issued drawing with the attached.
- P001: Revise following items for DHRW-1 in Plumbing Equipment Schedule: pump flow to 21 gpm, pump head to 40 ft head, horsepower shall be ½ hp and Basis of Design shall be B&G Xylem Ecocirc XL Model No. 55-45.
- P103: Revise Drawing Note 18 to read as follows “Existing gas-fired domestic water heater, associated expansion tank and all associated appurtenances to remain.”
- P103: Revise extent of ½” cold water piping demolition up to drinking fountain in cafeteria (drinking fountain does not exist).
- P107: Revise Drawing Note 7 to read as follows “Existing gas-fired domestic water heater,

associated expansion tank and all associated appurtenances to remain.”

- P107: Remove the word “mixing valve” in Drawing Note 8.
- P107: Remove plan note “RX F DN” in Gym.
- P107: Add demolition of ¾" cold water to existing hose bib (to remain) located by exterior exit door of Mechanical Rm.
- P203: Add Drawing Note 14 to read as follows “1/2” HWR, 1/2" HW & 1/2” CW down to S-2.” Add Drawing Note 14 to pipe drops in Storage Rm 319.
- P204: Replace previously issued drawing with the attached.
- P301: Replace previously issued drawing with the attached.
- P302: Replace previously issued drawing with the attached.
- P303: Revise Drawing Note 5 to read as follows “Not used.”
- E001: Electrical Legend: Delete (BY OTHERS) from Wall Mounted Projector Mounting Plate.
- E001: Electrical Legend: Add Recessed PA Speaker 

S
---

 (1' x 1' box with an S).
- E001: General Notes: Add Note 47 as follows: Under Base Bid, all recessed ceiling mounted 1' x 1' PA speakers located throughout the school shall be replaced with new 1' x 2' PA speakers as specified in Drawing Note 10 on Drawing E403A. Replacement 1' x 2' speakers shall be reconnected to existing wiring serving 1' x 1' speakers which were removed.
- E108: Detail 2: Add note to telephone terminal board and cabinet on west wall of room (identified on Drawing E208): Remove existing abandoned telephone terminal board and cabinet inclusive of unused wiring. Cut incoming conduit below top of finished floor. Patch and finish floor opening to match adjacent surfaces.
- E202: Corridor B004: Revise visual fire alarm device at east end to audible/visual device.
- E202: Corridor B003: Relocate fire alarm audible visual device adjacent to CUH-2 to north wall of corridor.
- E202: Room B001: Revise drawing note 3 to drawing note 12 and add drawing note 12 as follows: Existing connection to sump pump to remain.
- E202: Drawing Note 8: Revise IN to SERVING.
- E203: Replace previously issued drawing with the attached.
- E204: Replace previously issued drawing with the attached.
- E205: Replace previously issued drawing with the attached.

- E206: Replace previously issued drawing with the attached.
- E207: Drawing Note 3: Delete & COIL CIRCULATOR PUMPS (HCC'S).
- E207: DOAS Unit Schedule: Revise NFSS serving DOAS-2 to 100 amps and NFSS serving DOAS-4 to 60 amps.
- E208: Add the following to end of Drawing Note 5: ...BEING REMOVED.
- E208: Mechanical M-1: Revise panel designations serving unit heaters to MPD.
- E208: Mechanical M-1: Revise Drawing Note 16 as follows: HW Recirc Pump: ½ HP, 208 volt, 1 phase. Provide manual motor starter and connect to Panel ME. Provide 20-amp, 2 pole circuit breaker in spaces 34 and 36 of Panel ME (left section) for connection to pump. Circuit breaker shall be type to match existing Square D Type NQOD panel.
- E301: Add one additional PA speaker to Corridor 002 and adjust locations to match Drawing E103. Revise Note designation from 3 to 12.
- E302: Add three PA speakers to Corridor 005 with Drawing Note 14 designation. Refer to Drawing E104 for speaker locations.
- E302: Corridor PA Speakers: Revise Drawing Note designation from 3 to 11.
- E304A: Replace previously issued drawing with the attached.
- E401A: Kindergarten Building Typical Classroom: Revise switch controlling three Type A lighting fixtures closest to smart board to sub letter a.
- E403A: Kindergarten and Typical Classroom: Switch Drawing Note 8 and 12 designations on floor plans.
- E502: Revise Drawing Notes 12 and 14 from 24 HOURS to 72 HOURS.
- E601: Panel ELP-LS: Add DOOR ACCESS to circuit number 12.
- E601: Panel ELP-OS: Add DOOR ACCESS to circuit numbers 16, 18, 20 and 22. Add 20 amp. 1 pole SPARE to circuit numbers 25 26, 28 and 30. Add six 1 pole spaces to circuit numbers 31 thru 36 (revise panel to 36 space panel).

### **CHANGES TO SPECIFICATIONS**

Section 000020: Add section 015300 – Existing Furnishings to the table of contents.

Section 000200: Revise the last sentence of paragraph eight (8) to read as follows: “If there is no overall Minority Business Enterprise goal or sub goals established for the package, then only Attachment 1A MBE Utilization and Fair Solicitation Affidavit & MBE Participation Schedule is required at the time of bid.”



Section 003000: Replace previously issued section with the attached.

Section 015300: Add the attached section 015300 – Existing Furnishings.

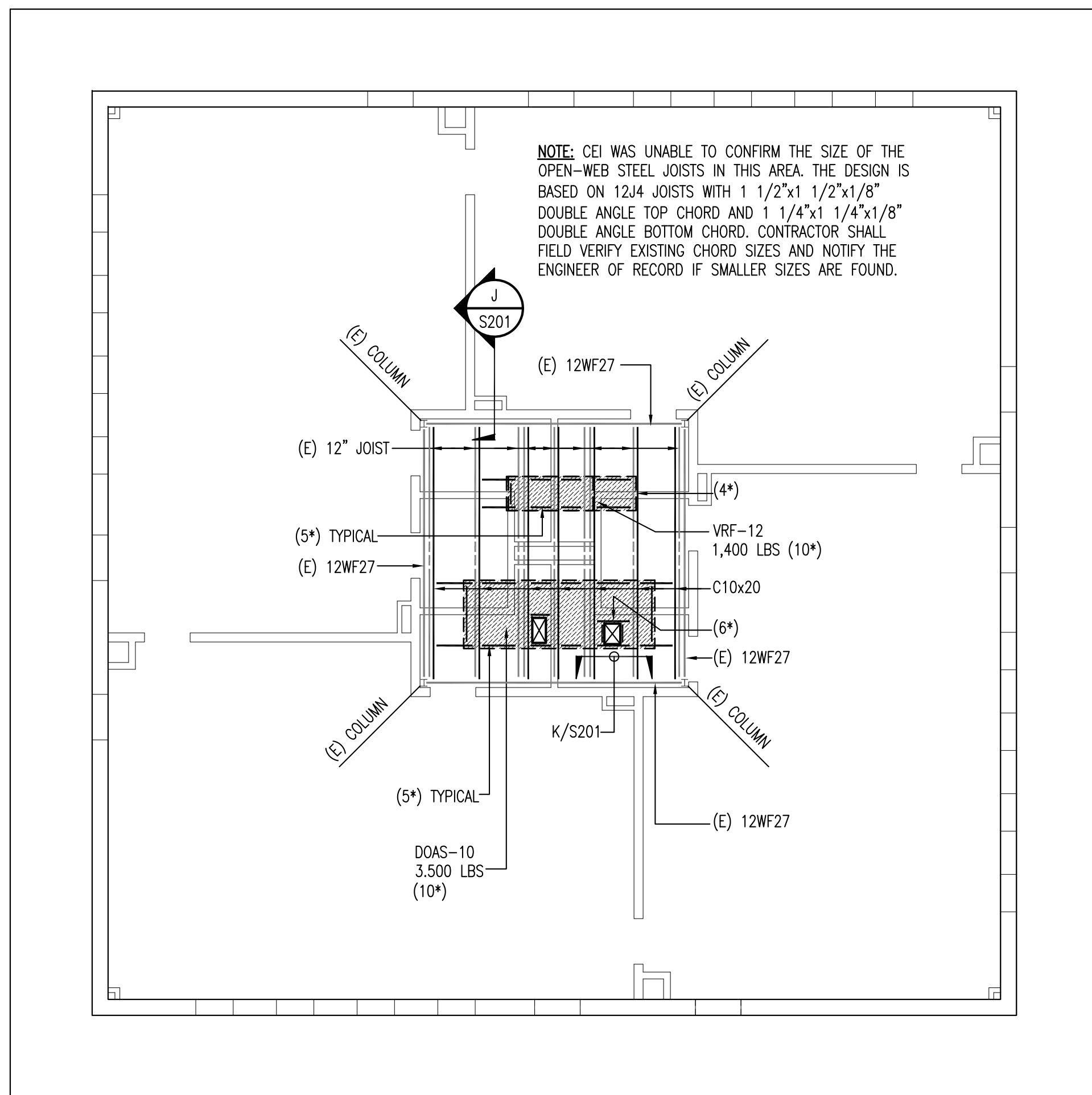
Section 088000: Replace previously issued section with the attached.

Section 101400: Replace the state sign model diagram at the end of section 101400 with the attached.

Section 263213: See attached section for Diesel Generator System.

Section 262413: Paragraph 2.3 E and F: Revise to indicate two main circuit breakers in lieu of one.

Section 262413: Add the following: 2.3, H: Provide surge suppression for incoming service by either a single device on the incoming bus or an individual device for each main circuit breaker.

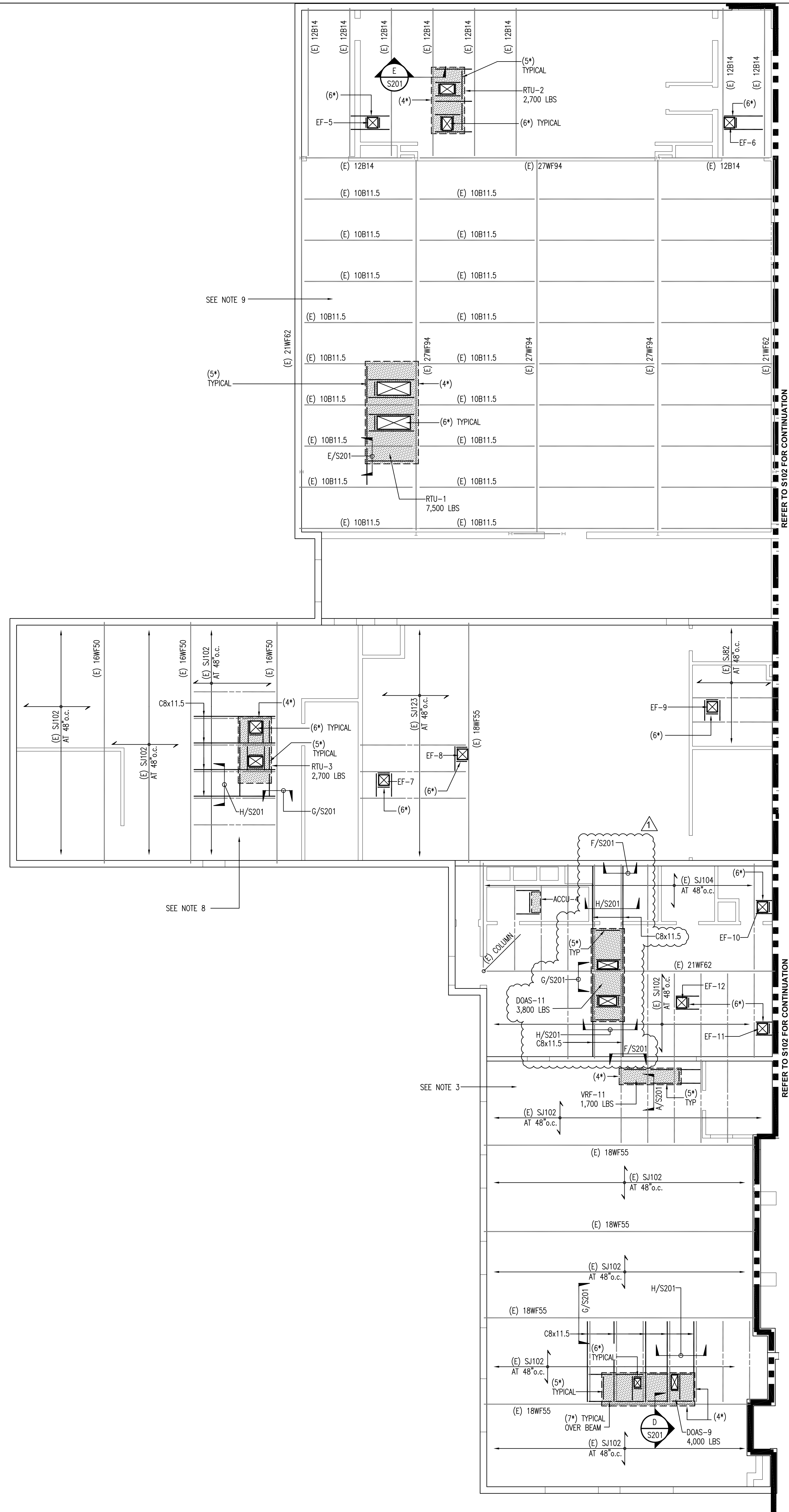


### ROOF FRAMING PLAN - AREA E

SCALE: 1/8"=1'-0"

#### NOTES:

- 1.) (E) DENOTES EXISTING.
- 2.) LOCATION OF ALL EXISTING MEMBERS THAT WILL SUPPORT NEW EQUIPMENT MUST BE ACCURATELY LOCATED BY THE CONTRACTOR PRIOR TO PREPARING SHOP DRAWINGS.
- 3.) EXISTING ROOF DECK IS UNKNOWN. CONTRACTOR TO FIELD VERIFY.
- 4.) (4\*) DENOTES LOCATE END OF UNIT OVER EXISTING JOIST OR BEAM.
- 5.) (5\*) DENOTES 4x3x1/4" ANGLE BELOW EQUIPMENT CURB, TYPICAL.
- 6.) (6\*) DENOTES PROVIDE 3x3x1/4" ANGLE FRAME AROUND ALL ROOF OPENINGS LARGER THAN 1'-0" ON A SIDE PER G/S001.
- 7.) PROVIDE LINTELS FOR ALL NEW DUCT PENETRATIONS THROUGH THE EXISTING MASONRY WALLS. REFER TO GENERAL MASONRY NOTES #4 AND #5.
- 8.) NEW DUCT PENETRATIONS SHALL BE SPACED SUCH THAT THE DIMENSION BETWEEN THE ADJACENT DUCTS IS AT LEAST THE LARGER MASONRY OPENING OF THE TWO DUCTS.
- 9.) NEW DUCT PENETRATIONS SHALL NOT BE LOCATED WITHIN A 2'-0"x2'-0" AREA BELOW JOIST BEARING SEAT OR BEAM BEARING PLATES.
- 10.) (10\*) DENOTES THAT NEW RTU IS LOCATED IN THE VICINITY AS AN EXISTING RTU. DEMOLISH EXISTING ROOF CURBS AND INSTALL NEW SUPPORT FRAME UNDER ALL NEW CURBS. INFILL EXISTING ROOF OPENINGS WITH 1 1/2", 20 GAGE, TYPE 'B' GALVANIZED METAL DECK. ANCHOR DECK TO SUPPORTS WITH 3/4" DIAMETER PUDDLE WELDS ON A 36/7 PATTERN AND INSTALL NO.10 SIDELAP SCREWS AT MAXIMUM 2'-0" o.c. FOR BIDDING PURPOSES, ASSUME ENTIRE FOOTPRINT OF EXISTING UNIT WILL REQUIRE REPLACEMENT DECKING.

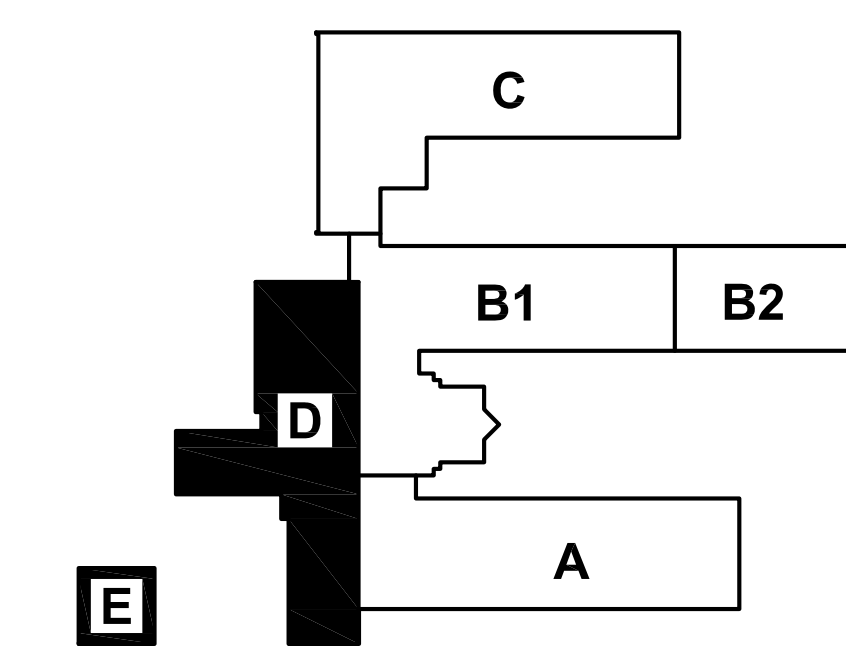


### ROOF FRAMING PLAN - AREA D

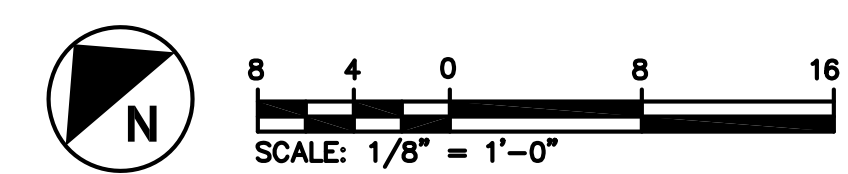
SCALE: 1/8"=1'-0"

#### NOTES:

- 1.) (E) DENOTES EXISTING.
- 2.) LOCATION OF ALL EXISTING MEMBERS THAT WILL SUPPORT NEW EQUIPMENT MUST BE ACCURATELY LOCATED BY THE CONTRACTOR PRIOR TO PREPARING SHOP DRAWINGS.
- 3.) EXISTING ROOF DECK IS 2" GYPSUM ON 1/2" SHEETROCK. CONTRACTOR TO FIELD VERIFY.
- 4.) (4\*) DENOTES LOCATE END OF UNIT OVER EXISTING JOIST OR BEAM.
- 5.) (5\*) DENOTES 4x3x1/4" ANGLE BELOW EQUIPMENT CURB, TYPICAL.
- 6.) (6\*) DENOTES PROVIDE 3x3x1/4" ANGLE FRAME AROUND ALL ROOF OPENINGS LARGER THAN 1'-0" ON A SIDE PER G/S001.
- 7.) (7\*) DENOTES 3 1/2"x 2 1/2"x 3/16" HSS BETWEEN JOIST ENDS.
- 8.) EXISTING ROOF DECK IS 2" POURED GYPSUM ON 1" ACOUSTIC FORMBOARD. CONTRACTOR TO FIELD VERIFY.
- 9.) EXISTING ROOF DECK IS 1 1/2", 20 GAGE ACOUSTIC METAL DECK. CONTRACTOR TO FIELD VERIFY.
- 10.) PROVIDE LINTELS FOR ALL NEW DUCT PENETRATIONS THROUGH THE EXISTING MASONRY WALLS. REFER TO GENERAL MASONRY NOTES #4 AND #5.
- 11.) NEW DUCT PENETRATIONS SHALL BE SPACED SUCH THAT THE DIMENSION BETWEEN THE ADJACENT DUCTS IS AT LEAST THE LARGER MASONRY OPENING OF THE TWO DUCTS.
- 12.) NEW DUCT PENETRATIONS SHALL NOT BE LOCATED WITHIN A 2'-0"x2'-0" AREA BELOW JOIST BEARING SEAT OR BEAM BEARING PLATES.



**KEY PLAN**  
NO SCALE



PROJECT NAME:

**Harford County  
Public Schools**



HVAC SYSTEMIC / PLUMBING  
RENOVATION  
ROYE-WILLIAMS  
ELEMENTARY SCHOOL

381 OAKINGTON RD.  
HAVRE DE GRACE, MD 21078

SEAL:

PROFESSIONAL CERTIFICATION:

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 14479 EXPIRATION DATE: 06/22/2021.

ISSUED FOR:

DATE	DESCRIPTION
09-13-19	DD SUBMISSION
10-25-19	50% CD SUBMISSION
12-13-19	100% IAC SUBMISSION
01-31-20	BID DOCUMENTS
02-21-20	ADDENDUM 1

PROJECT NO: 19102.01

SCALE: AS NOTED

DRAWN BY: MT

CHECKED BY: RC

DATE: FEBRUARY 21, 2020

SHEET TITLE:

**ROOF FRAMING PLAN  
'D' AND 'E'  
- NEW WORK**

DRAWING NO:

**S104**





VRF AIR CONDITIONING UNIT SCHEDULE												
AREA SERVED	DESIGNATION		CFM	UNIT TYPE	COOLING			HEATING MBH	ELECTRICAL		BASIS OF DESIGN	
	INDOOR UNIT	CONDENSING UNIT			TOTAL MBH	SENS MBH	EAT DB/WB (F)		MCA	VOLTS/Φ		
CLASSROOM - 101	1-1	VRF-1	1307	4-WAY CASSETTE	22.3	18.9	75.0 / 62.5	6.9	1.2	208/1	JCI	
CLASSROOM - 101	1-2		1307	4-WAY CASSETTE	22.3	18.9	75.0 / 62.5	6.9	1.2	208/1	JCI	
CLASSROOM - 102	1-3		1307	4-WAY CASSETTE	28.2	24.8	75.0 / 62.5	7.3	1.2	208/1	JCI	
CLASSROOM - 102	1-4		1307	4-WAY CASSETTE	28.2	24.8	75.0 / 62.5	7.3	1.2	208/1	JCI	
CLASSROOM - 103	1-5		1307	4-WAY CASSETTE	22.1	18.7	75.0 / 62.5	6.7	1.2	208/1	JCI	
CLASSROOM - 103	1-6		1307	4-WAY CASSETTE	22.1	18.7	75.0 / 62.5	6.7	1.2	208/1	JCI	
CLASSROOM - 104	1-7		1307	4-WAY CASSETTE	28.2	24.8	75.0 / 62.5	7.3	1.2	208/1	JCI	
CLASSROOM - 104	1-8		1307	4-WAY CASSETTE	28.2	24.8	75.0 / 62.5	7.3	1.2	208/1	JCI	
CLASSROOM - 105	1-9		1307	4-WAY CASSETTE	22.1	18.7	75.0 / 62.5	6.7	1.2	208/1	JCI	
CLASSROOM - 105	1-10		1307	4-WAY CASSETTE	22.1	18.7	75.0 / 62.5	6.7	1.2	208/1	JCI	
CORRIDOR A	1-11	459	MINI CASSETTE	5.5	5.5	75.0 / 62.5	0.7	1.2	208/1	JCI		
CLASSROOM - 106	2-1	VRF-2	1307	4-WAY CASSETTE	28.2	24.8	75.0 / 62.5	7.3	1.2	208/1	JCI	
CLASSROOM - 106	2-2		1307	4-WAY CASSETTE	28.2	24.8	75.0 / 62.5	7.3	1.2	208/1	JCI	
CLASSROOM - 107	2-3		1307	4-WAY CASSETTE	22.1	18.7	75.0 / 62.5	6.7	1.2	208/1	JCI	
CLASSROOM - 107	2-4		1307	4-WAY CASSETTE	22.1	18.7	75.0 / 62.5	6.7	1.2	208/1	JCI	
CLASSROOM - 108	2-5		1307	4-WAY CASSETTE	30.2	26.8	75.0 / 62.5	10.9	1.2	208/1	JCI	
CLASSROOM - 108	2-6		1307	4-WAY CASSETTE	30.2	26.8	75.0 / 62.5	10.9	1.2	208/1	JCI	
CLASSROOM - 109	2-7		1307	4-WAY CASSETTE	24.9	21.5	75.0 / 62.5	10.5	1.2	208/1	JCI	
CLASSROOM - 109	2-8		1307	4-WAY CASSETTE	24.9	21.5	75.0 / 62.5	10.5	1.2	208/1	JCI	
CORRIDOR A	2-9		459	MINI CASSETTE	5.5	5.5	75.0 / 62.5	0.7	1.2	208/1	JCI	
CLASSROOM - 200	3-1		VRF-3	953	4-WAY CASSETTE	17.5	15.3	75.0 / 62.5	5.0	1.2	208/1	JCI
CLASSROOM - 200	3-2	953		4-WAY CASSETTE	17.5	15.3	75.0 / 62.5	5.0	1.2	208/1	JCI	
CLASSROOM - 201	3-3	1307		4-WAY CASSETTE	21.6	18.2	75.0 / 62.5	6.3	1.2	208/1	JCI	
CLASSROOM - 201	3-4	1307		4-WAY CASSETTE	21.6	18.2	75.0 / 62.5	6.3	1.2	208/1	JCI	
CLASSROOM - 202	3-5	1307		4-WAY CASSETTE	27.0	23.6	75.0 / 62.5	6.7	1.2	208/1	JCI	
CLASSROOM - 202	3-6	1307		4-WAY CASSETTE	27.0	23.6	75.0 / 62.5	6.7	1.2	208/1	JCI	
CLASSROOM - 203	3-7	1307		4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.1	1.2	208/1	JCI	
CLASSROOM - 203	3-8	1307		4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.1	1.2	208/1	JCI	
CLASSROOM - 204	3-9	1307		4-WAY CASSETTE	27.0	23.6	75.0 / 62.5	6.7	1.2	208/1	JCI	
CLASSROOM - 204	3-10	1307		4-WAY CASSETTE	27.0	23.6	75.0 / 62.5	6.7	1.2	208/1	JCI	
WORKROOM - 416	3-11	VRF-4	953	4-WAY CASSETTE	17.5	14.1	75.0 / 62.5	2.7	1.2	208/1	JCI	
WORKROOM - 416	3-12		953	4-WAY CASSETTE	17.5	14.1	75.0 / 62.5	2.7	1.2	208/1	JCI	
CORRIDOR B	3-13		530	MINI CASSETTE	8.2	8.2	75.0 / 62.5	1.1	1.2	208/1	JCI	
CLASSROOM - 205	4-1		1307	4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.1	1.2	208/1	JCI	
CLASSROOM - 205	4-2		1307	4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.1	1.2	208/1	JCI	
CLASSROOM - 206	4-3		1307	4-WAY CASSETTE	27.0	23.6	75.0 / 62.5	6.7	1.2	208/1	JCI	
CLASSROOM - 206	4-4		1307	4-WAY CASSETTE	27.0	23.6	75.0 / 62.5	6.7	1.2	208/1	JCI	
CLASSROOM - 207	4-5		1307	4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.1	1.2	208/1	JCI	
CLASSROOM - 207	4-6		1307	4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.1	1.2	208/1	JCI	
CLASSROOM - 208	4-7		1307	4-WAY CASSETTE	27.0	23.6	75.0 / 62.5	6.7	1.2	208/1	JCI	
CLASSROOM - 208	4-8	1307	4-WAY CASSETTE	27.0	23.6	75.0 / 62.5	6.7	1.2	208/1	JCI		
CLASSROOM - 209	4-9	VRF-5	1307	4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.1	1.2	208/1	JCI	
CLASSROOM - 209	4-10		1307	4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.1	1.2	208/1	JCI	
CLASSROOM - 210	4-11		1307	4-WAY CASSETTE	27.0	23.6	75.0 / 62.5	6.7	1.2	208/1	JCI	
CLASSROOM - 210	4-12		1307	4-WAY CASSETTE	27.0	23.6	75.0 / 62.5	6.7	1.2	208/1	JCI	
CORRIDOR B	4-13		459	MINI CASSETTE	8.2	8.2	75.0 / 62.5	0.9	1.2	208/1	JCI	
CLASSROOM - 211	5-1		1307	4-WAY CASSETTE	22.0	18.6	75.0 / 62.5	6.6	1.2	208/1	JCI	
CLASSROOM - 211	5-2		1307	4-WAY CASSETTE	22.0	18.6	75.0 / 62.5	6.6	1.2	208/1	JCI	
CLASSROOM - 212	5-3		1307	4-WAY CASSETTE	28.0	24.6	75.0 / 62.5	7.2	1.2	208/1	JCI	
CLASSROOM - 212	5-4		1307	4-WAY CASSETTE	28.0	24.6	75.0 / 62.5	7.2	1.2	208/1	JCI	
CLASSROOM - 213	5-5		1307	4-WAY CASSETTE	22.0	18.6	75.0 / 62.5	6.6	1.2	208/1	JCI	
CLASSROOM - 213	5-6	1307	4-WAY CASSETTE	22.0	18.6	75.0 / 62.5	6.6	1.2	208/1	JCI		
CLASSROOM - 214	5-7	VRF-6	1307	4-WAY CASSETTE	28.0	24.6	75.0 / 62.5	7.2	1.2	208/1	JCI	
CLASSROOM - 214	5-8		1307	4-WAY CASSETTE	28.0	24.6	75.0 / 62.5	7.2	1.2	208/1	JCI	
CLASSROOM - 215	5-9		1307	4-WAY CASSETTE	24.3	20.9	75.0 / 62.5	9.7	1.2	208/1	JCI	
CLASSROOM - 215	5-10		1307	4-WAY CASSETTE	24.3	20.9	75.0 / 62.5	9.7	1.2	208/1	JCI	
CLASSROOM - 216	5-11		1307	4-WAY CASSETTE	29.7	26.3	75.0 / 62.5	10.3	1.2	208/1	JCI	
CLASSROOM - 216	5-12		1307	4-WAY CASSETTE	29.7	26.3	75.0 / 62.5	10.3	1.2	208/1	JCI	
CORRIDOR B	5-13		530	MINI CASSETTE	8.2	8.2	75.0 / 62.5	1.1	1.2	208/1	JCI	
CLASSROOM - 305	6-1		VRF-7	953	4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.2	1.2	208/1	JCI
CLASSROOM - 305	6-2			953	4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.2	1.2	208/1	JCI
CLASSROOM - 306	6-3			953	4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.2	1.2	208/1	JCI
CLASSROOM - 306	6-4	953		4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.2	1.2	208/1	JCI	
CLASSROOM - 307	6-5	953		4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.2	1.2	208/1	JCI	
CLASSROOM - 307	6-6	953		4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.2	1.2	208/1	JCI	
CLASSROOM - 308	6-7	1307		4-WAY CASSETTE	31.5	28.1	75.0 / 62.5	8.9	1.2	208/1	JCI	
CLASSROOM - 308	6-8	1307		4-WAY CASSETTE	31.5	28.1	75.0 / 62.5	8.9	1.2	208/1	JCI	
CORRIDOR C	6-9	459		MINI CASSETTE	7.4	7.4	75.0 / 62.5	1.0	1.2	208/1	JCI	

VRF AIR CONDITIONING UNIT SCHEDULE											
AREA SERVED	DESIGNATION		CFM	UNIT TYPE	COOLING			HEATING MBH	ELECTRICAL		BASIS OF DESIGN
	INDOOR UNIT	CONDENSING UNIT			TOTAL MBH	SENS MBH	EAT DB/WB (F)		MCA	VOLTS/Φ	
CLASSROOM - 309	7-1	VRF-7	953	4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.1	1.2	208/1	JCI
CLASSROOM - 309	7-2		953	4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.1	1.2	208/1	JCI
CLASSROOM - 310	7-3		1307	4-WAY CASSETTE	31.5	28.1	75.0 / 62.5	8.9	1.2	208/1	JCI
CLASSROOM - 310	7-4		1307	4-WAY CASSETTE	31.5	28.1	75.0 / 62.5	8.9	1.2	208/1	JCI
CLASSROOM - 311	7-5		953	4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.1	1.2	208/1	JCI
CLASSROOM - 311	7-6		953	4-WAY CASSETTE	21.5	18.1	75.0 / 62.5	6.1	1.2	208/1	JCI
CLASSROOM - 312	7-7		1307	4-WAY CASSETTE	29.8	26.4	75.0 / 62.5	10.3	1.2	208/1	JCI
CLASSROOM - 312	7-8		1307	4-WAY CASSETTE	29.8	26.4	75.0 / 62.5	10.3	1.2	208/1	JCI
CLASSROOM - 313	7-9		1307	4-WAY CASSETTE	24.2	20.8	75.0 / 62.5	9.7	1.2	208/1	JCI
CLASSROOM - 313	7-10		1307	4-WAY CASSETTE	24.2	20.8	75.0 / 62.5	9.7	1.2	208/1	JCI
CORRIDOR C	7-11	530	MINI CASSETTE	7.4	7.4	75.0 / 62.5	1.0	1.2	208/1	JCI	
CLASSROOM - 300	8-1	VRF-8	1307	4-WAY CASSETTE	32.9	29.5	75.0 / 62.5	10.7	1.2	208/1	JCI
CLASSROOM - 300	8-2		1307	4-WAY CASSETTE	32.9	29.5	75.0 / 62.5	10.7	1.2	208/1	JCI
CLASSROOM - 301	8-3		1307	4-WAY CASSETTE	26.2	22.8	75.0 / 62.5	9.9	1.2	208/1	JCI
CLASSROOM - 301	8-4		1307	4-WAY CASSETTE	26.2	22.8	75.0 / 62.5	9.9	1.2	208/1	JCI
CLASSROOM - 303	8-5		1307	4-WAY CASSETTE	31.0	27.6	75.0 / 62.5	8.8	1.2	208/1	JCI
CLASSROOM - 303	8-6		1307	4-WAY CASSETTE	31.0	27.6	75.0 / 62.5	8.8	1.2	208/1	JCI
CLASSROOM - 304	8-7		1307	4-WAY CASSETTE	24.2	20.8	75.0 / 62.5	5.8	1.2	208/1	JCI
CLASSROOM - 304	8-8		1307	4-WAY CASSETTE	24.2	20.8	75.0 / 62.5	5.8	1.2	208/1	JCI
CORRIDOR F - NORTH	8-9		530	MINI CASSETTE	13.0	12.0	75.0 / 62.5	7.6	1.2	208/1	JCI
CORRIDOR F - SOUTH	8-10		530	MINI CASSETTE	13.0	12.0	75.0 / 62.5	11.1	1.2	208/1	JCI
OFFICE - 417	9-1	VRF-9	530	MINI CASSETTE	11.9	11.5	75.0 / 62.5	10.0	1.2	208/1	JCI
OFFICE - 417	9-1		953	4-WAY CASSETTE	12.5	12.0	75.0 / 62.5	5.9	1.2	208/1	JCI
LIBRARY - 418	9-2		953	4-WAY CASSETTE	14.6	12.9	75.0 / 62.5	6.6	1.2	208/1	JCI
LIBRARY - 418	9-3		953	4-WAY CASSETTE	14.6	12.9	75.0 / 62.5	6.6	1.2	208/1	JCI
LIBRARY - 418	9-4		953	4-WAY CASSETTE	14.6	12.9	75.0 / 62.5	6.6	1.2	208/1	JCI
LIBRARY - 418	9-5		953	4-WAY CASSETTE	14.6	12.9	75.0 / 62.5	6.6	1.2	208/1	JCI
LIBRARY - 418	9-6		953	4-WAY CASSETTE	14.6	12.9	75.0 / 62.5	6.6	1.2	208/1	JCI
LIBRARY - 418	9-7		953	4-WAY CASSETTE	14.6	12.9	75.0 / 62.5	6.6	1.2	208/1	JCI
LIBRARY - 418	9-8		953	4-WAY CASSETTE	14.6	12.9	75.0 / 62.5	6.6	1.2	208/1	JCI
LIBRARY - 418	9-9		953	4-WAY CASSETTE	14.6	12.9	75.0 / 62.5	6.6	1.2	208/1	JCI
COMP. LAB - 419	9-10	VRF-10	953	4-WAY CASSETTE	16.3	13.5	75.0 / 62.5	2.2	1.2	208/1	JCI
COMP. LAB - 419	9-11		953	4-WAY CASSETTE	16.3	13.5	75.0 / 62.5	2.2	1.2	208/1	JCI
CORRIDOR D	9-12		459	MINI CASSETTE	6.7	6.7	75.0 / 62.5	0.9	1.2	208/1	JCI
CORRIDOR D	9-13		459	MINI CASSETTE	6.7	6.7	75.0 / 62.5	0.9	1.2	208/1	JCI
CORRIDOR E	9-14		459	MINI CASSETTE	9.7	9.7	75.0 / 62.5	0.9	1.2	208/1	JCI
OFFICE - 407	9-15		424	MINI CASSETTE	4.0	3.5	75.0 / 62.5	0.9	1.2	208/1	JCI
OFFICE - 421	10-1		953	4-WAY CASSETTE	14.6	12.9	75.0 / 62.5	6.6	1.2	208/1	JCI
OFFICE - 422	10-2		424	MINI CASSETTE	3.8	3.6	75.0 / 62.5	1.1	1.2	208/1	JCI
HEALTH - 422	10-3		424	MINI CASSETTE							

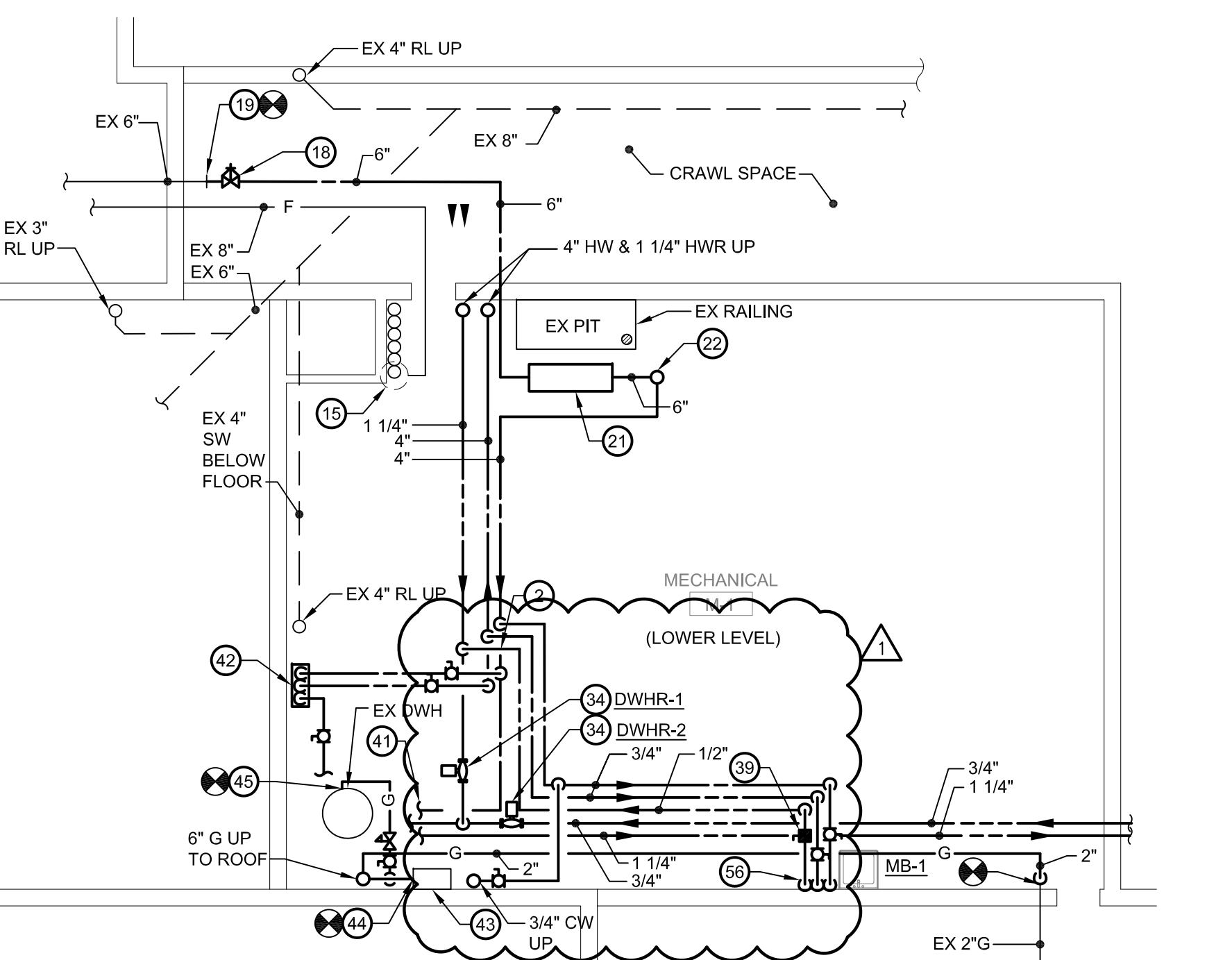
**GENERAL NOTES:**

- REFER TO P001 FOR PLUMBING LEGEND, ABBREVIATIONS, SCHEDULES, GENERAL NOTES AND SPRINKLER GENERAL NOTES.
- EXISTING SANITARY, VENT AND STORM WATER PIPING AND ALL ASSOCIATED APPURTENANCES TO REMAIN.
- REFER TO DRAWING T101, FOR PHASING OF PLUMBING AND SPRINKLER WORK.
- CONTRACTOR SHALL PROVIDE SPRINKLER SYSTEM AS REQUIRED TO PROVIDE COMPLETE SPRINKLER COVERAGE OF ALL SPACES. SPRINKLER COVERAGE SHALL BE DESIGNED BY THE SPRINKLER CONTRACTOR IN ACCORDANCE WITH NFPA 13 AND THE OWNER'S INSURANCE CARRIER'S HAZARD OCCUPANCY REQUIREMENTS.
- CONTRACTOR SHALL CONNECT NEW PLUMBING FIXTURE TO EXISTING SANITARY AND VENT PIPING ROUGH-INS.

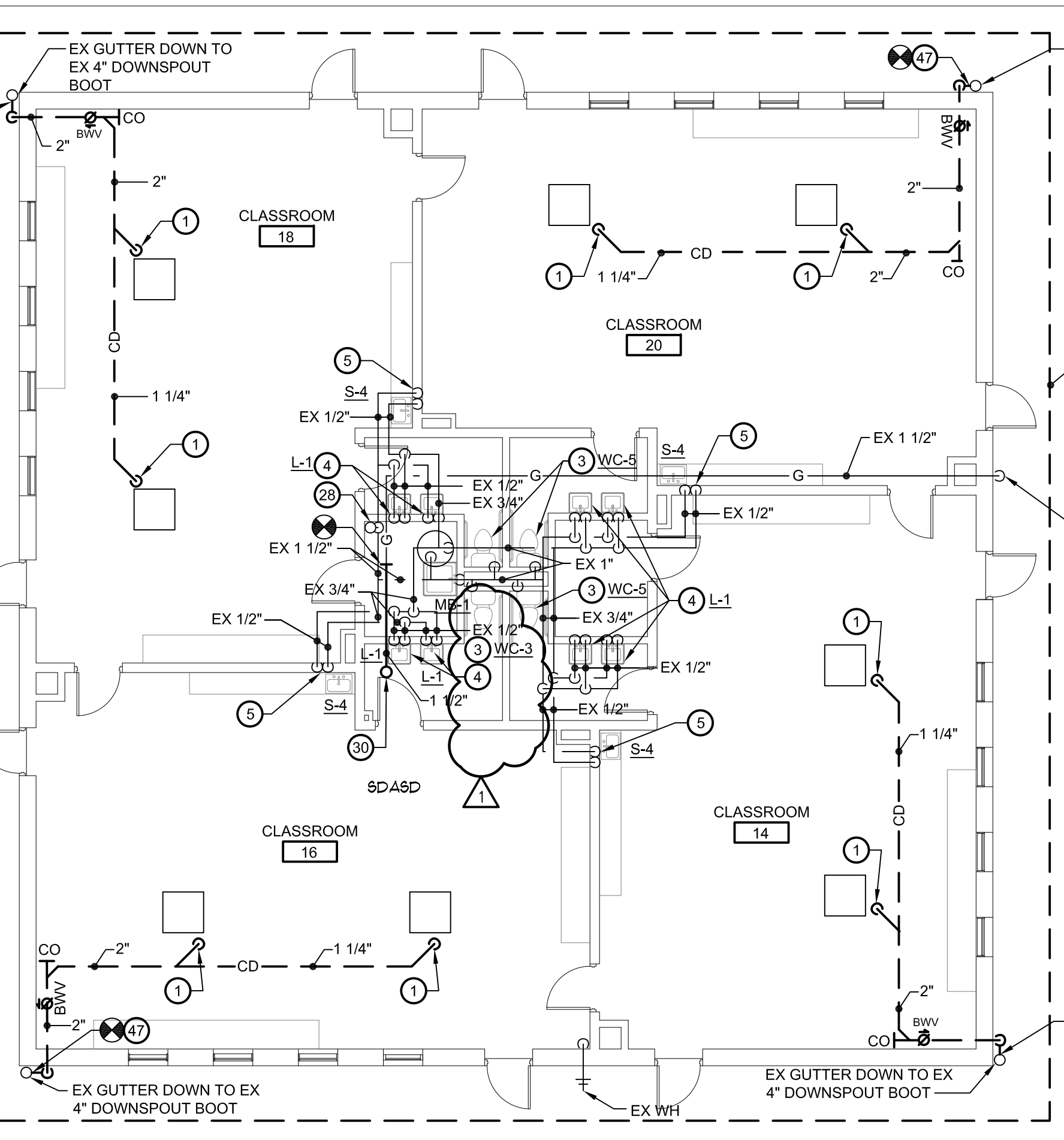
**DRAWING NOTES:**

- PROVIDE 1/4" CONDENSATE PIPING TO MECHANICAL UNIT. MECHANICAL UNIT UNDER ANOTHER DIVISION. UNDER THIS DIVISION PROVIDE ROUGH-IN AND FINAL CONNECTION. EXTEND 1/4" CONDENSATE PIPING TO EXISTING STORM WATER.
- COLD WATER PIPING LOCATED IN CRAWL SPACE.
- PROVIDE NEW WATER CLOSET IN EXACT LOCATION OF WHERE THE EXISTING WATER CLOSET WAS REMOVED UNDER THE DEMOLITION; CONNECT NEW WATER CLOSET TO THE EXISTING SANITARY ROUGH-IN. PROVIDE NEW WATER CLOSET, FLUSH VALVE, COLD WATER PIPING AND ALL APPURTENANCES.
- PROVIDE NEW LAVATORY IN EXACT LOCATION OF WHERE THE EXISTING LAVATORY WAS REMOVED UNDER THE DEMOLITION; CONNECT LAVATORY TO THE EXISTING SANITARY ROUGH-IN. PROVIDE NEW LAVATORY, FAUCET, SUPPLY STOPS, SUPPLY RISERS, TRAPPIECE, TRAP, TRAP ARM AND ALL APPURTENANCES.
- PROVIDE NEW SHOWER FAUCET HEAD AND CONTROLS IN EXACT LOCATION OF WHERE THE EXISTING WAS REMOVED UNDER THE DEMOLITION.
- PROVIDE NEW SINK IN EXACT LOCATION OF WHERE THE EXISTING SINK WAS REMOVED UNDER THE DEMOLITION; CONNECT SINK TO THE EXISTING SANITARY ROUGH-IN. PROVIDE NEW SINK, FAUCET, SUPPLY STOPS, SUPPLY RISERS, TRAPPIECE, TRAP, TRAP ARM AND ALL APPURTENANCES.
- 2" CW, 2" HW & 3/4" HWR UP. FOR CONTINUATION, REFER TO FIRST FLOOR PLAN 'D' - PLUMBING - NEW WORK ON THIS SHEET.
- 1 1/4" CW, 1 1/4" HW (140 DEG F) UP.
- 1 1/4" CW, 1 1/4" HW & 1/2" HWR TO EXISTING 1 1/4" CW, 1 1/4" HW & 1/2" HWR UP.
- 3/4" CW, 3/4" HW & 1/2" HWR TO MB-1.
- 1 1/4" CW TO WC-1.
- 1/2" CW, 1/2" HW & 1/2" HWR TO L-1.
- 1/2" CW & 1/2" HW TO EXISTING 3 COMPARTMENT SINK.
- CONNECT NEW 3/4" CW, 3/4" HW & 1/2" HWR TO EXISTING CAN WASHING.
- EXISTING FIRE PROTECTION DOUBLE CHECK DETECTOR BACKFLOW PREVENTER.
- EXISTING SIAMSESE FIRE DEPARTMENT CONNECTION.
- EXISTING FIRE PIPING DOWN TO WET PIPE ALARM CHECK VALVE ASSEMBLY AND TRIM AND SPRINKLER ZONE VALVE ASSEMBLIES. CONTRACTOR SHALL RE-LABEL AND RE-SIGN EXISTING FIRE PROTECTION SYSTEM.
- MAIN DOMESTIC WATER SHUT-OFF OS&Y GATE VALVE.
- CONNECT NEW 6" CW TO EXISTING 6" INCOMING DOMESTIC WATER.
- CONNECT NEW SPRINKLER MAIN TO EXISTING SPRINKLER MAINS (TYPICAL OF 5 ZONES).
- 6" DOMESTIC WATER REDUCED PRESSURE ZONE BACKFLOW PREVENTER. REFER TO DETAIL.
- 4" CW UP WITH OS&Y GATE VALVE IN VERTICAL RISE.
- 4" CW DOWN TO LOWER LEVEL MECHANICAL RM.
- 2" CW, 2" HW & 3/4" HWR DOWN IN NEW CHASE. FOR CONTINUATION, REFER TO PART PLAN CRAWL SPACE/KITCHEN - PLUMBING - NEW WORK ON THIS SHEET.
- 1 1/4" CW & 1 1/4" HW DOWN INTO CRAWL SPACE. FOR CONTINUATION, REFER TO PART PLAN CRAWL SPACE/KITCHEN - PLUMBING - NEW WORK ON THIS SHEET.
- CONNECT 3" SANITARY, 1 1/2" SANITARY & 2" SANITARY TO EXISTING 3" SAN, 1 1/2" SANITARY & 2" SANITARY INDIRECT DRAIN AT THE WALL IN BETWEEN THE KITCHEN AND DISHWASHER ROOM. MATCH EXISTING SANITARY SIZE IN FIELD.
- EXTEND 2" CONDENSATE DOWN AND CONNECT TO NEAREST STORM WATER. REFER TO DEMOLITION PLAN FOR STORM WATER PIPE LOCATION IN CRAWLSPACE.
- EXISTING 1 1/2" INCOMING DOMESTIC COLD WATER WITH SHUT-OFF VALVE IN VERTICAL DOWN.
- EXISTING 2" INCOMING GAS DOWN.
- 1 1/2" GAS UP TO DOAS-10. DOAS UNIT PROVIDED UNDER ANOTHER DIVISION.
- RE-INSULATE ALL EXISTING DOMESTIC WATER PIPING IN THIS BUILDING. REFER TO PIPE INSULATION SCHEDULE.
- CONNECT 2" CONDENSATE TO EXISTING STORM WATER. PROVIDE BACKWATER VALVE.
- CONNECT NEW CW, HW & HWR TO EXISTING GAS-FIRED DOMESTIC WATER HEATER. PROVIDE DOMESTIC HOT WATER MASTER MIXING VALVE DWMV-1. REFER TO DOMESTIC WATER HEATER DETAIL AND SCHEDULE.
- NEW HOT WATER RECIRCULATION PUMP. REFER TO SCHEDULE AND DETAIL.
- CONNECT NEW 1 1/4" CW & 1 1/4" HW TO EXISTING 1 1/4" CW & 1 1/4" HW AT THE WALL IN BETWEEN THE KITCHEN AND DISHWASHER ROOM.
- CONNECT NEW 3/4" HW & 3/4" CW TO EXISTING 3-COMPARTMENT SINK, PROVIDE NEW SHUT-OFF VALVES.
- PROVIDE HAND SINK S-3. CONNECT NEW 1/2" HW & 1/2" CW TO EXISTING ROUGH-INS AT WALL.
- CONNECT NEW 3/4" HW & 3/4" CW TO EXISTING 2-COMPARTMENT SINK. PROVIDE NEW SHUT-OFF VALVES.
- COMBINATION BALANCING AND SHUT-OFF VALVE. SET AT 0.5 GPM. REFER TO DETAIL.
- COMBINATION BALANCING AND SHUT-OFF VALVE. SET AT 1.0 GPM. REFER TO DETAIL.
- FOR CONTINUATION OF PIPING, REFER TO DOMESTIC WATER HEATER DETAIL.
- DOMESTIC HOT WATER MIXING VALVE, DWMV-1. REFER TO SCHEDULE AND DETAIL.
- EXISTING INCOMING GAS SERVICE AND GAS METER ASSEMBLY.
- CONNECT NEW 6" GAS TO EXISTING GAS METER ASSEMBLY.
- CONNECT NEW 3" GAS TO EXISTING GAS SERVICE SERVING EXISTING DOMESTIC WATER HEATER.
- 6" GAS UP THROUGH ROOF AND DOWN TO LOWER LEVEL MECHANICAL ROOM.
- CONNECT 2" CONDENSATE TO EXISTING GUTTER HIGH ON WALL.
- 1 1/4" CONDENSATE DOWN. DISCHARGE THROUGH EXTERIOR WALL AT 18" ABOVE FINISHED GRADE OVER SPLASHBLOCK.
- 1 1/2" CW, 3/4" HW & 1/2" HWR DOWN IN NEW CHASE.
- 1 1/4" CW & 1/2" HW UP TO WC-2.
- 1/2" CW & 1/2" HW UP TO SH-1.
- 1 1/2" CW, 3/4" HW & 1/2" HWR UP.
- 1 1/2" CW, 3/4" HW & 1/2" HWR UP.
- CONNECT NEW 3/4" CW TO EX 3/4" CW.
- 1/2" HWR, 3/4" HW & 3/4" CW DN TO MB-1.

**1 PART PLAN BASEMENT - PLUMBING - NEW WORK**  
SCALE: 1/8" = 1'-0"

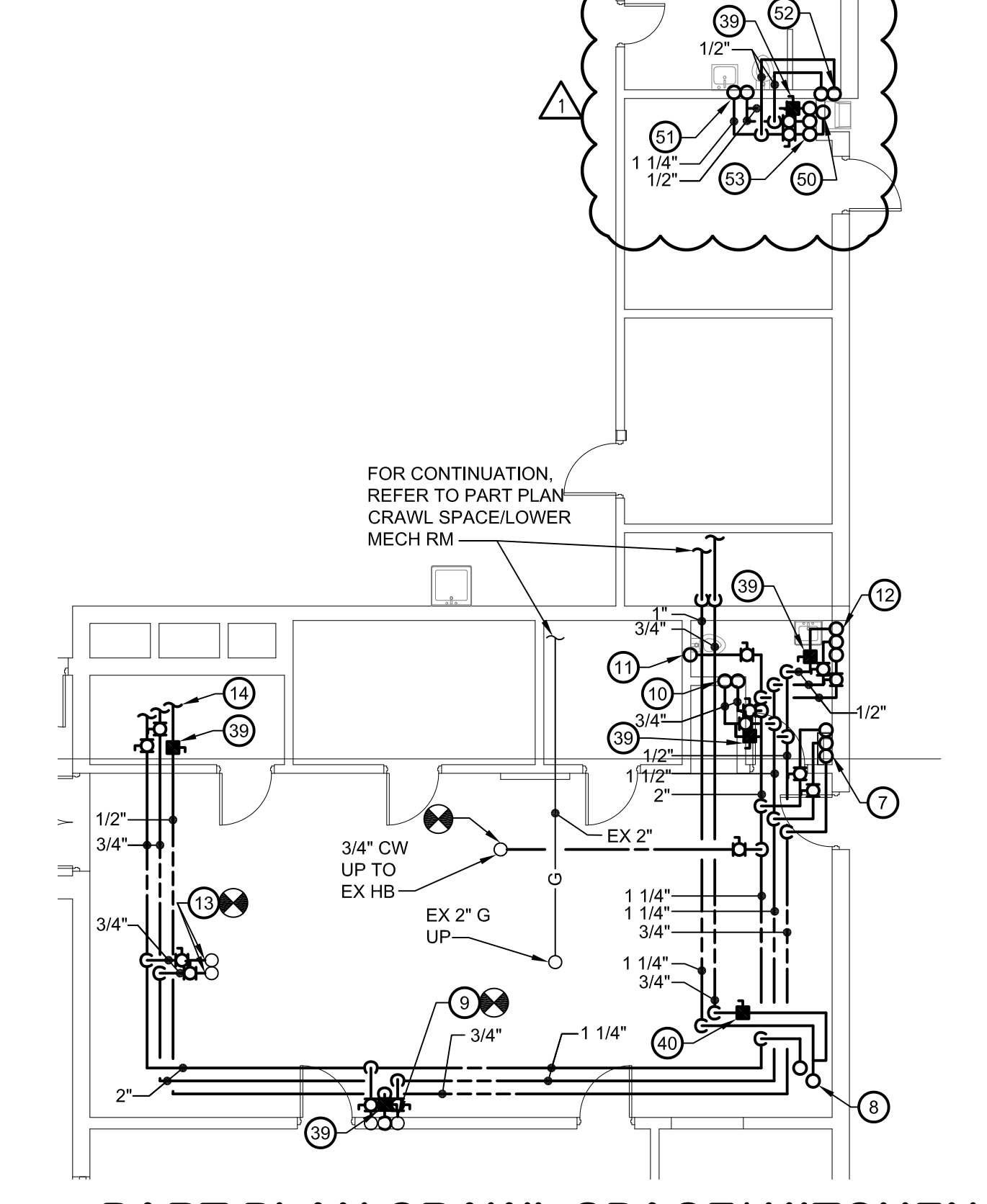


**2 PART PLAN CRAWL SPACE/LOWER MECHANICAL ROOM - PLUMBING - NEW WORK**  
SCALE: 1/8" = 1'-0"  
NOTE: ALL WORK SHOWN ON THIS DRAWING SHALL BE LOCATED IN CRAWL SPACE.

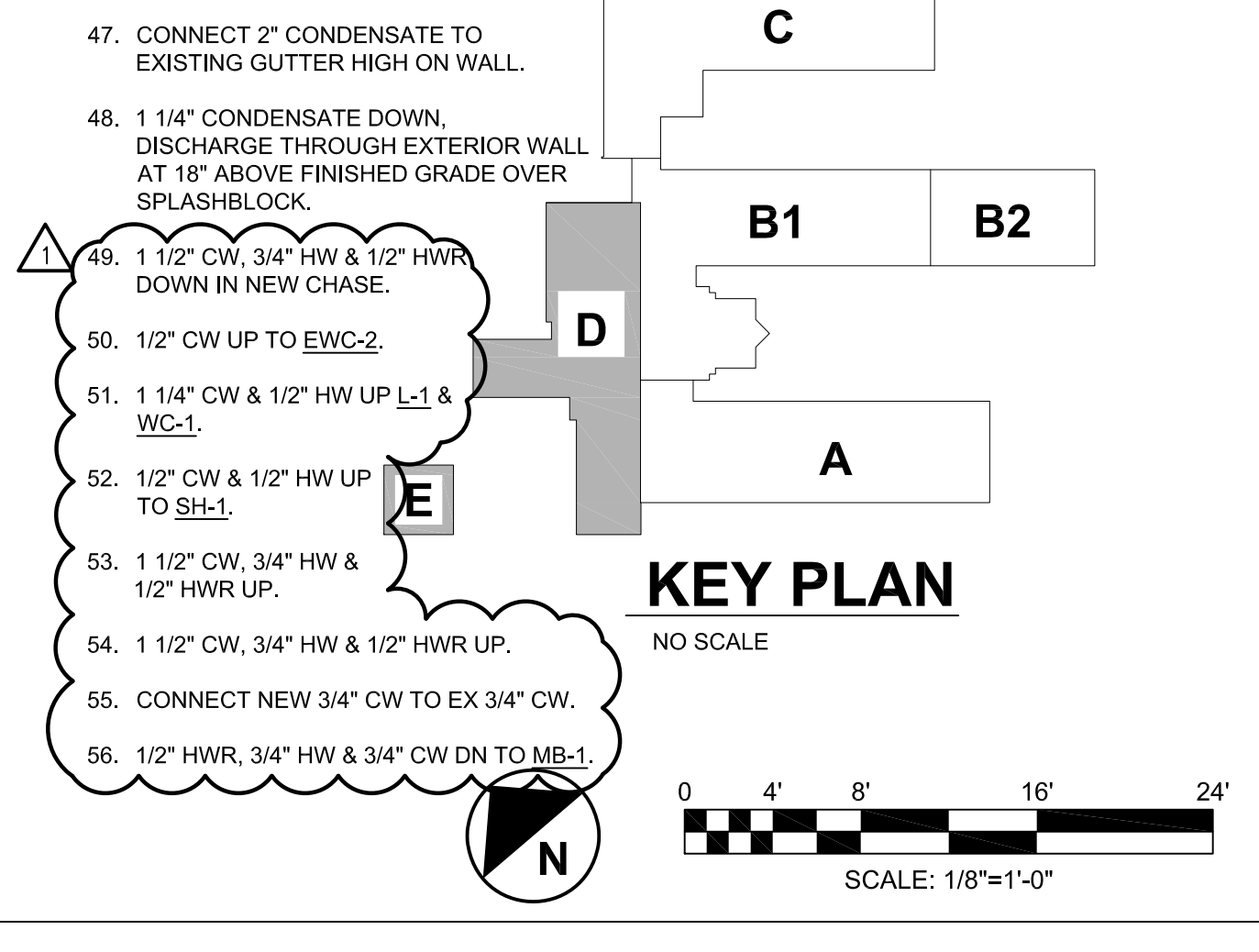
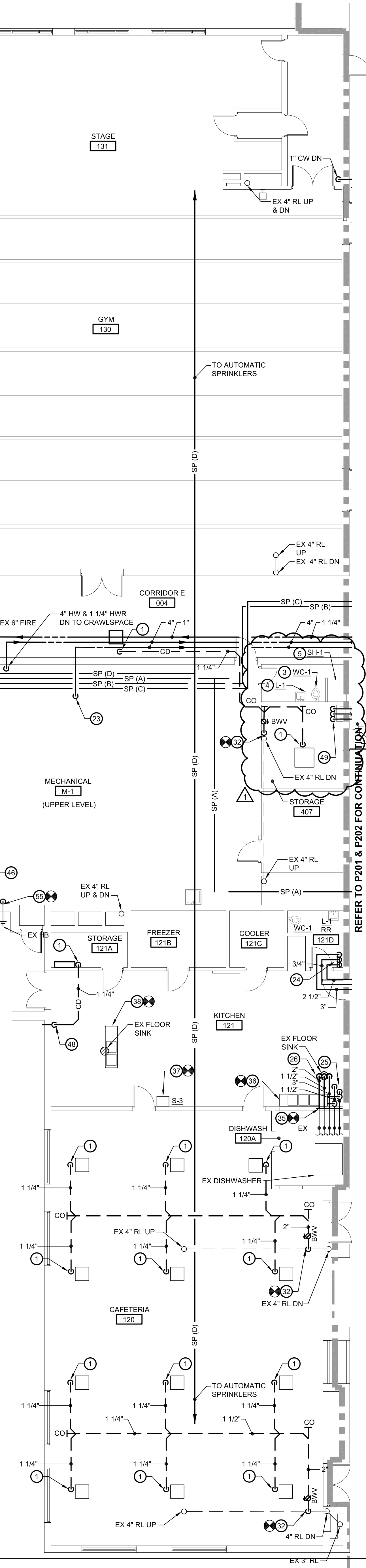


**5 FIRST FLOOR PLAN 'E' - PLUMBING - NEW WORK**  
SCALE: 1/8" = 1'-0"

**3 FIRST FLOOR PLAN 'D' - PLUMBING NEW WORK**  
SCALE: 1/8" = 1'-0"



**4 PART PLAN CRAWL SPACE/ KITCHEN PLUMBING - NEW WORK**  
SCALE: 1/8" = 1'-0"  
NOTE: ALL WORK SHOWN ON THIS DRAWING SHALL BE LOCATED IN CRAWL SPACE.



ISSUED FOR:

DATE	DESCRIPTION
09-13-19	DD SUBMISSION
10-25-19	50% CD SUBMISSION
12-13-19	100% IAC SUBMISSION
01-31-20	BID DOCUMENTS
02-21-20	ADDENDUM 1

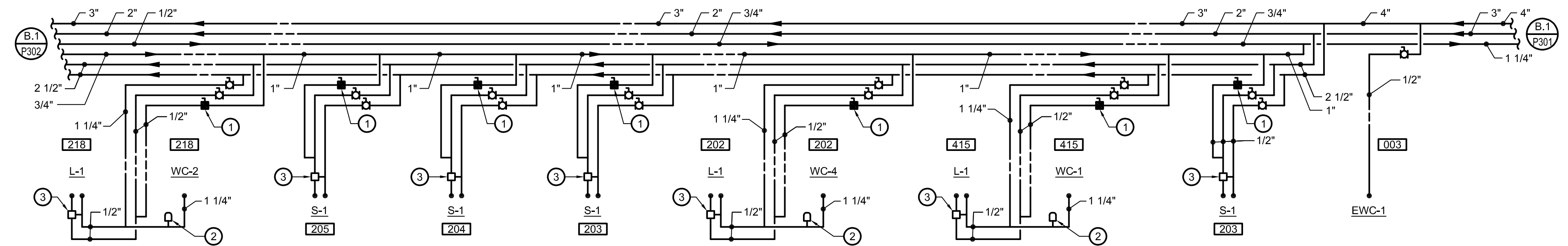




ROOF

FIRST FLOOR

CRAWL SPACE



**GENERAL NOTES:**

1. REFER TO P0.01 FOR PLUMBING LEGEND, ABBREVIATIONS, SCHEDULES AND GENERAL PLUMBING AND SPRINKLER NOTES.
2. REFER TO DRAWING T101, FOR PHASING OF PLUMBING WORK.

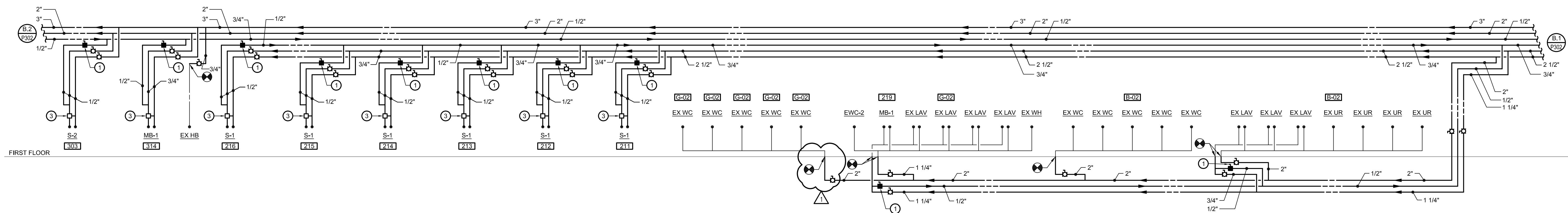
**DRAWING NOTES:**

1. COMBINATION BALANCE FITTING AND SHUT-OFF VALVE, SET TO 0.5 GPM, REFER TO DETAIL.
2. WASTE HAMMER ARRESTOR, SIZE TO PDI WH-201 STANDARD.
3. ASSE1070 POINT-OF-USE THERMOSTATIC MIXING VALVE.

ROOF

FIRST FLOOR

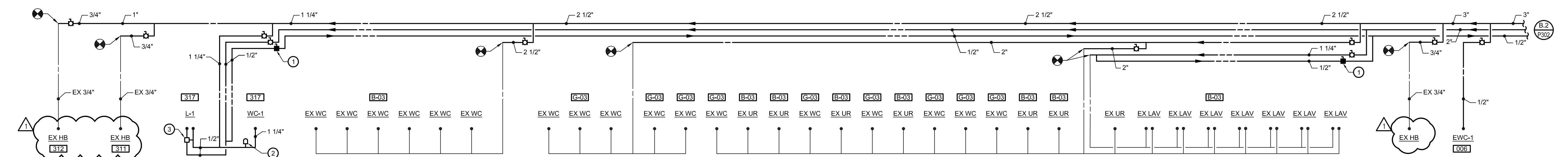
CRAWL SPACE



ROOF

FIRST FLOOR

CRAWL SPACE



**1 DOMESTIC WATER RISER DIAGRAM (CONT'D)**  
NO SCALE

**bkm**  
Burdette, Koehler, Murphy & Associates, Inc.  
Mechanical / Electrical Engineers  
6300 Blair Hill Lane, Suite 400  
Baltimore, Maryland 21209  
P: 410.323.0600 | www.bkma.com

PROJECT NAME:

**Harford County  
Public Schools**



HVAC SYSTEMIC / PLUMBING  
RENOVATION  
ROYE-WILLIAMS  
ELEMENTARY SCHOOL

201 OAKINGTON RD,  
HAYRE DE GRACE, MD 21078

SEAL:

PROFESSIONAL CERTIFICATION:

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 18528 EXPIRATION DATE: 07/27/20

ISSUED FOR:

DATE	DESCRIPTION
09-13-19	DD SUBMISSION
10-25-19	50% CD SUBMISSION
12-13-19	100% IAC SUBMISSION
01-31-20	BID DOCUMENTS
02-21-20	ADDENDUM 1

PROJECT NO: 19102.01

SCALE: AS NOTED

DRAWN BY: BKM

CHECKED BY: BKM

DATE: FEBRUARY 21, 2020

SHEET TITLE:

**PLUMBING  
RISER DIAGRAMS**

DRAWING NO:

**P302**

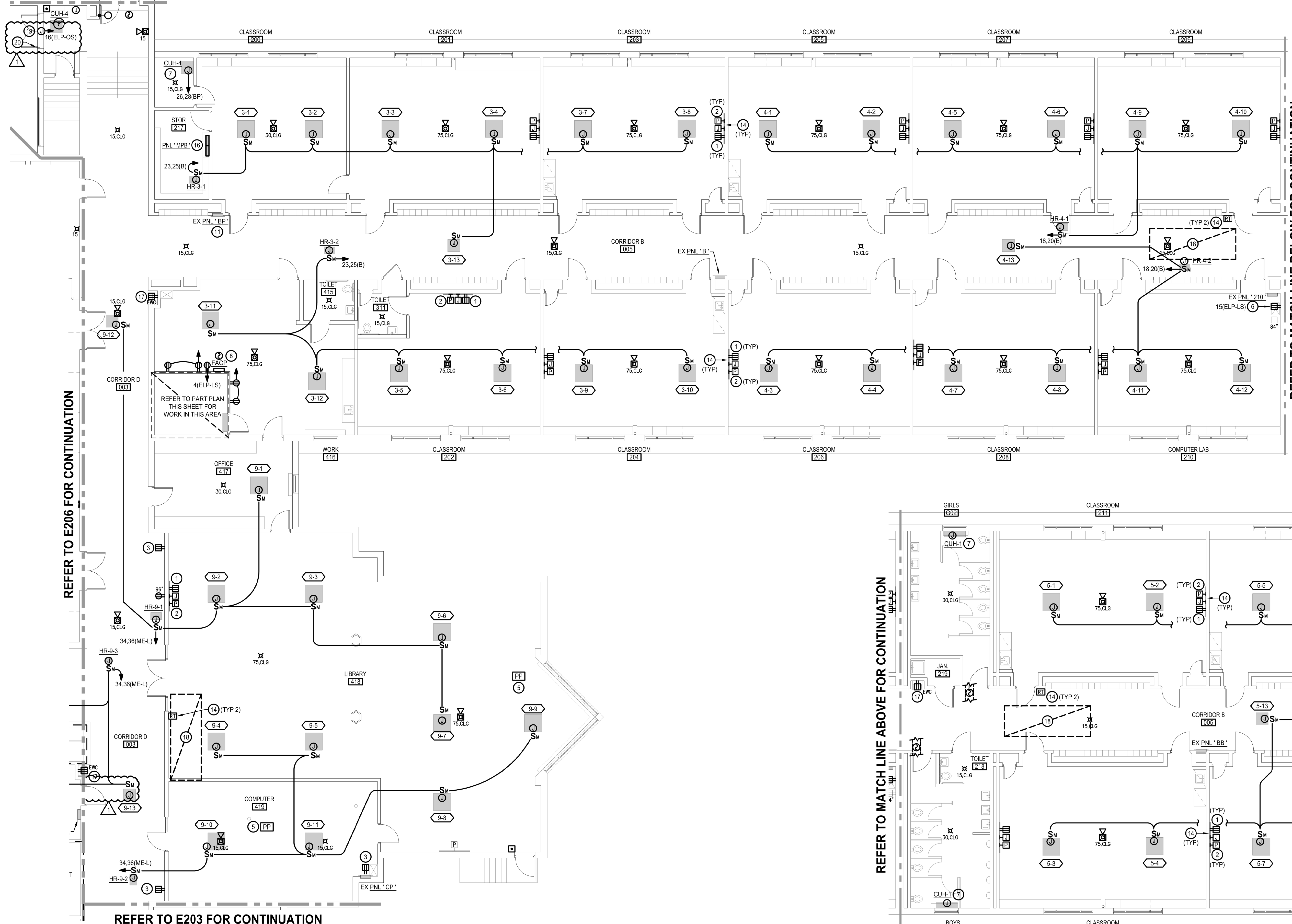
BKM# 19102.01



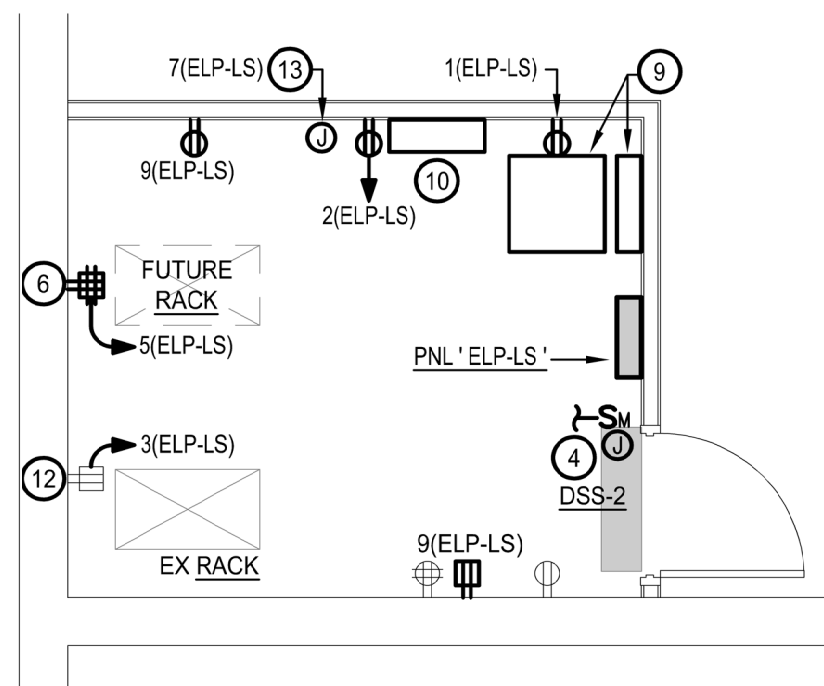




REFER TO E205 FOR CONTINUATION

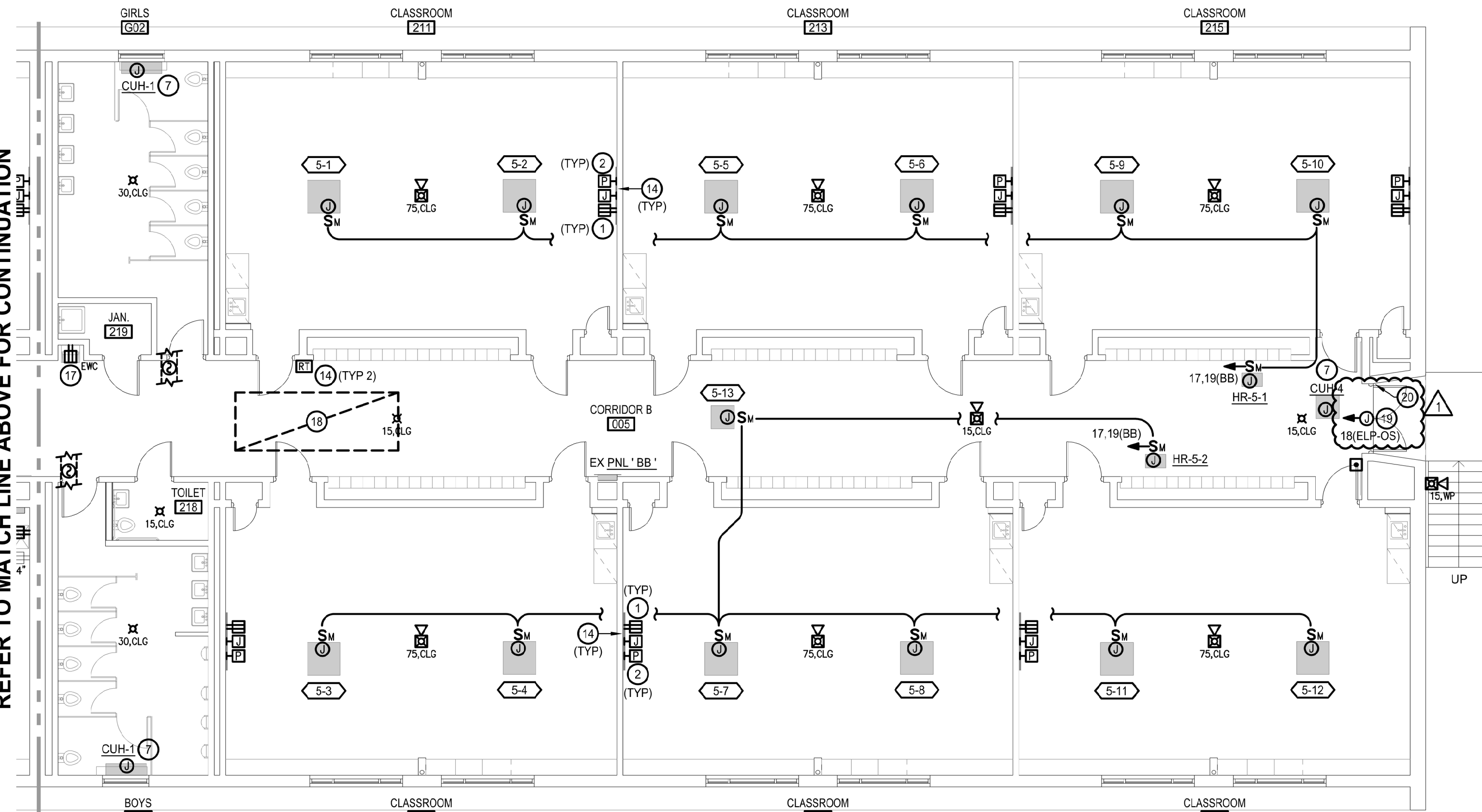


**1** FIRST FLOOR PLAN 'B1'  
POWER & SPECIAL SYSTEMS - NEW WORK  
SCALE: 1/8" = 1'-0"



**PART PLAN - MAIN IT CLOSET**  
POWER & SPECIAL SYSTEMS - NEW WORK  
SCALE: 1/4" = 1'-0"

REFER TO MATCH LINE ABOVE FOR CONTINUATION



**2** FIRST FLOOR PLAN 'B2' - POWER & SPECIAL SYSTEMS - NEW WORK  
SCALE: 1/8" = 1'-0"

**DRAWING NOTES:**

- RECEPTACLE FOR WALL MOUNTED PROJECTOR. CONNECT TO BRANCH CIRCUIT THAT SERVED PROJECTOR PRIOR TO DEMOLITION. MOUNT RECEPTACLE TIGHT TO TOP OF CHALK/ MARKER / WHITE BOARD. REFER TO PROJECTOR MOUNTING DETAIL ON DRAWING E404 & GENERAL NOTE #23 ON DRAWING E001.
- SURFACE MOUNTED EMPTY OUTLET BOX FOR PROJECTOR MOUNTED ADJACENT TO PROJECTOR RECEPTACLE. EXTEND SURFACE METAL RACEWAY FROM OUTLET BOX TO ABOVE CEILING. DEVICE, DEVICE PLATE & WIRING WILL BE PROVIDED BY HCPS. REFER TO PROJECTOR MOUNTING DETAIL ON DRAWING E201 & GENERAL NOTE #23 ON DRAWING E001.
- RELOCATE SURFACE MOUNTED RECEPTACLE 6" BELOW NEW CEILING. CONNECT TO EX BRANCH CIRCUIT THAT SERVED RECEPTACLE REMOVED DURING DEMOLITION PHASE.
- CONNECTION FOR INDOOR A/C SPLIT SYSTEM (DSS-1): 1A, 208 V, 1 PH. EXTEND 2 #12 IN 3/4" CONDUIT TO ASSOCIATED OUTDOOR CONDENSING UNIT.
- REINSTALL POWER POLE IN REPLACEMENT CEILING & RIGIDLY SECURE TO STRUCTURE ABOVE & TO FLOOR. RESTORE TO WORKING ORDER PRIOR TO DEMOLITION.
- PROVIDE SURFACE MOUNTED RECEPTACLE FOR SERVER RACK / IT PATCH PANEL & CONNECT TO EMERGENCY PANEL INDICATED. COORDINATE RECEPTACLE NEMA CONFIGURATION & VOLTAGE PRIOR TO ROUGH-IN.
- ELECTRIC HEATER (CUH-1 & 4): 3 KW, 208 V, 1 PH. CONNECT TO INTEGRAL DISCONNECT SWITCH. EXTEND NEW WIRING IN NEW EX CONDUIT & RECONNECT TO EX CIRCUIT BREAKER THAT SERVED ELECTRIC HEATER REMOVED DURING DEMOLITION PHASE.
- FIRE ALARM CONTROL PANEL (FACP)
- RELOCATE PUBLIC ANNOUNCEMENT SYSTEM & PROVIDE NEW 110 PUNCH DOWN BLOCKS IN CABINET ABOVE CONSOLE.
- RELOCATED PHONE EQUIPMENT (FROM ROOM #100). EQUIPMENT IS BEING RELOCATED BY HCPS. CONTRACTOR SHALL PROVIDE NEW 110 PUNCH DOWN BLOCKS & EXTEND (1) 50 PAIR CABLE FROM ROOM #100 TO NEW PUNCH DOWN BLOCKS. FINAL TERMINATION OF CABLE WILL BE PROVIDED BY HCPS.
- CONTRACTOR SHALL INTERCEPT EX BRANCH CIRCUIT & EXTEND TO PANEL 'ELP-OS': #2 (20A, 1P) STAIR CHAIR LIFT.
- PROVIDE CONNECTION TO EX SURFACE MOUNTED TELECOM RECEPTACLE TO CIRCUIT INDICATED.
- WALL SPACE & POWER FOR DOOR ACCESS CONTROL SYSTEM. PROVIDE 2' x 3/4" THICK PLYWOOD BACKBOARD. COORDINATE CONNECTION TYPE & LOCATION WITH HCPS & SECURITY CONTRACTOR PRIOR TO ROUGH-IN.
- REMOTE DUCT SMOKE DETECTOR TEST SWITCH
- REINSTALL EX INTERACTIVE WHITEBOARD (IWB) MOUNTING BRACKETS & WHITEBOARD CENTERED ON TEACHING WALL. COORDINATE ALL WORK WITH HCPS.
- CONTRACTOR SHALL MODIFY SHELF SYSTEM TO PROVIDE PANEL CLEARANCE PER NEC.
- PROVIDE NEW RECEPTACLE FOR CONNECTION TO ELECTRIC WATER COOLER (EWC). CONNECT TO EX BRANCH CIRCUIT SERVING EWC IN DEMOLITION PHASE. REPLACE EX CB SERVING EWC WITH 'GFCI' TYPE CB FOR COMPLIANCE WITH NEC.
- AIR HANDLING UNIT OR RTU ON ROOF ABOVE. RELOCATE ALL UTILITIES (I.E. CABLES, CONDUIT, ETC.) BELOW UNIT AS REQUIRED FOR INSTALLATION OF UNIT STRUCTURAL SUPPORT, DUCTWORK AND / OR PIPING.
- PROVIDE 120 VOLT POWER FOR CONNECTION TO DOOR HARDWARE POWER SUPPLY. COORDINATE WITH SECURITY CONTRACTOR.
- PROVIDE 3/4" HOLE DRILLED INTO MULLION AT 42" AFF ON EXTERIOR SIDE AND ABOVE ACCESSIBLE CEILING ON INTERIOR SIDE. PROVIDE PULL STRING THROUGH BOTH HOLES FOR USE BY SECURITY CONTRACTOR TO INSTALL CABLING FOR CARD READER. COORDINATE ALL WORK WITH SECURITY CONTRACTOR.



#210 #416 #419

**GENERAL NOTES:**

- REFER TO E001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- REFER TO TYPICAL CLASSROOM SPECIAL SYSTEM LAYOUT ON DRAWING E403A FOR INFORMATION PERTAINING TO PA, AUDIO / VISUAL, & TELECOM SYSTEMS.
- REFER TO DRAWING E201, E202 & E207 FOR MECHANICAL EQUIPMENT SCHEDULES.

PROJECT NAME:

**Harford County  
Public Schools**



HVAC SYSTEMIC / PLUMBING  
RENOVATION  
ROYE-WILLIAMS  
ELEMENTARY SCHOOL

201 OAKINGTON RD,  
HAVRE DE GRACE, MD 21078

SEAL:

PROFESSIONAL CERTIFICATION:

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO.: 20513 EXPIRATION DATE: 07/17/2020

ISSUED FOR:

DATE	DESCRIPTION
09-13-19	DD SUBMISSION
10-25-19	50% CD SUBMISSION
12-13-19	100% IAC SUBMISSION
01-31-20	BID DOCUMENTS
02-21-20	ADDENDUM 1

PROJECT NO: 19102.01

SCALE: AS NOTED

DRAWN BY: MB

CHECKED BY: LSF / RAM

DATE: FEBRUARY 21, 2020

SHEET TITLE:

**FIRST FLOOR PLAN 'B1' & 'B2'  
POWER & SPECIAL SYSTEMS  
NEW WORK**

DRAWING NO:

**E204**



PROJECT NAME:

**Harford County  
 Public Schools**



HVAC SYSTEMIC / PLUMBING  
 RENOVATION  
 ROYE-WILLIAMS  
 ELEMENTARY SCHOOL

201 OAKINGTON RD,  
 HAYRE DE GRACE, MD 21078

SEAL:

PROFESSIONAL CERTIFICATION:

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 20913 EXPIRATION DATE: 07/17/2020

ISSUED FOR:

DATE	DESCRIPTION
09-13-19	DD SUBMISSION
10-25-19	50% CD SUBMISSION
12-13-19	100% IAC SUBMISSION
01-31-20	BID DOCUMENTS
02-21-20	ADDENDUM 1

PROJECT NO: 19102.01

SCALE: AS NOTED

DRAWN BY: MB

CHECKED BY: LSF / RAM

DATE: FEBRUARY 21, 2020

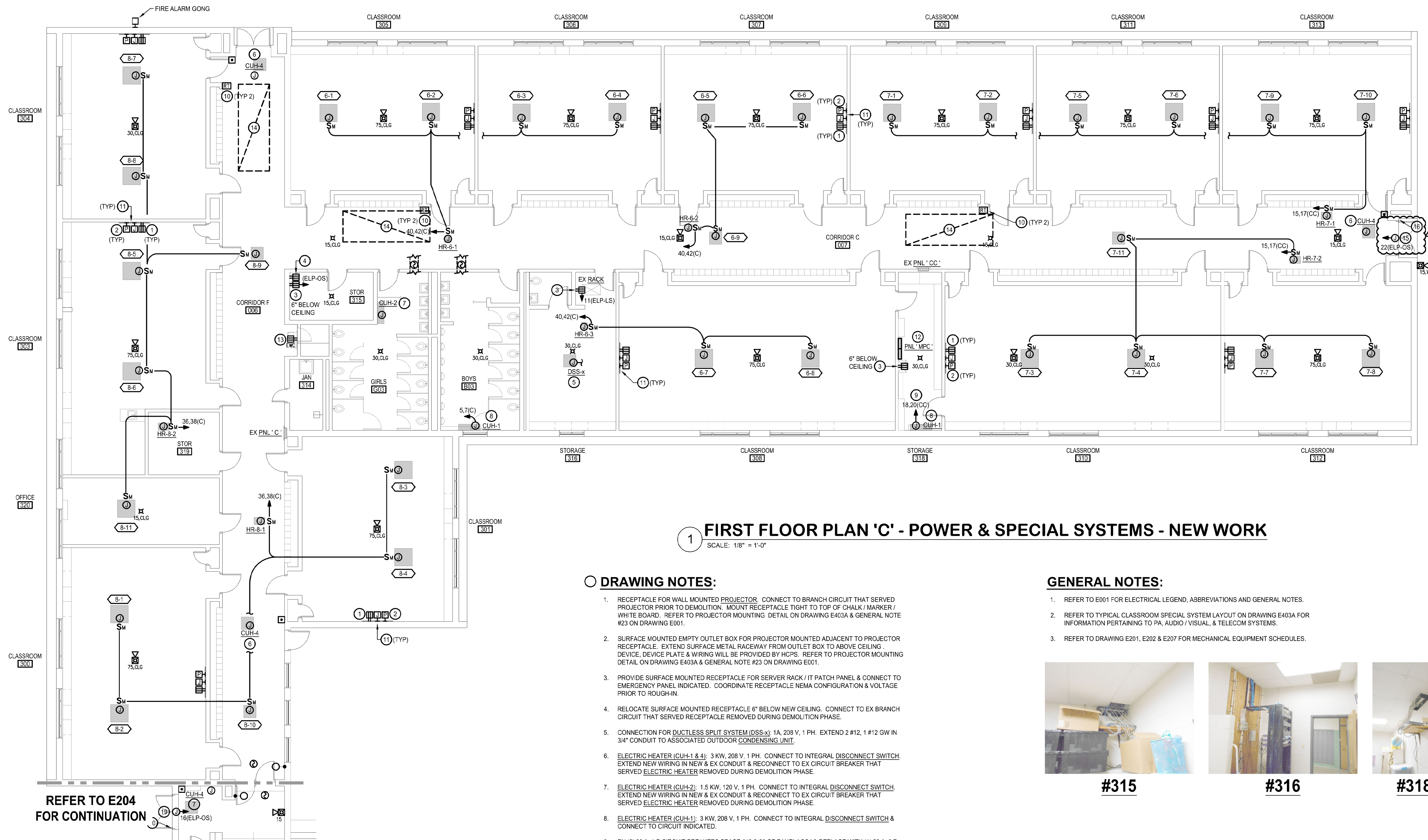
SHEET TITLE:

**FIRST FLOOR PLAN 'C'  
 POWER & SPECIAL SYSTEMS  
 NEW WORK**

DRAWING NO:

**E205**

BKMM 19102.01



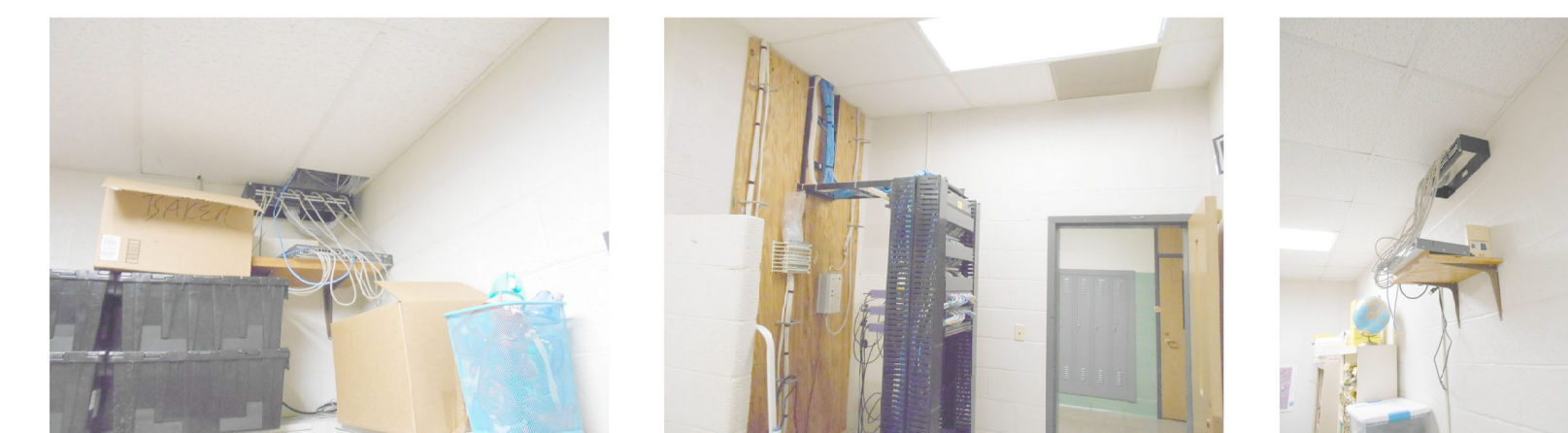
**1 FIRST FLOOR PLAN 'C' - POWER & SPECIAL SYSTEMS - NEW WORK**  
 SCALE: 1/8" = 1'-0"

**DRAWING NOTES:**

- RECEPTACLE FOR WALL MOUNTED PROJECTOR. CONNECT TO BRANCH CIRCUIT THAT SERVED PROJECTOR PRIOR TO DEMOLITION. MOUNT RECEPTACLE TIGHT TO TOP OF CHALK / MARKER / WHITE BOARD. REFER TO PROJECTOR MOUNTING DETAIL ON DRAWING E403A & GENERAL NOTE #23 ON DRAWING E001.
- SURFACE MOUNTED EMPTY OUTLET BOX FOR PROJECTOR MOUNTED ADJACENT TO PROJECTOR RECEPTACLE. EXTEND SURFACE METAL RACEWAY FROM OUTLET BOX TO ABOVE CEILING. DEVICE, DEVICE PLATE & WIRING WILL BE PROVIDED BY HCPS. REFER TO PROJECTOR MOUNTING DETAIL ON DRAWING E403A & GENERAL NOTE #23 ON DRAWING E001.
- PROVIDE SURFACE MOUNTED RECEPTACLE FOR SERVER RACK / IT PATCH PANEL & CONNECT TO EMERGENCY PANEL INDICATED. COORDINATE RECEPTACLE NEMA CONFIGURATION & VOLTAGE PRIOR TO ROUGH-IN.
- RELOCATE SURFACE MOUNTED RECEPTACLE 6" BELOW NEW CEILING. CONNECT TO EX BRANCH CIRCUIT THAT SERVED RECEPTACLE REMOVED DURING DEMOLITION PHASE.
- CONNECTION FOR DUCTLESS SPLIT SYSTEM (DSS-x). 1A, 208 V, 1 PH. EXTEND 2 #12, 1 #12 GW IN 3/4" CONDUIT TO ASSOCIATED OUTDOOR CONDENSING UNIT.
- ELECTRIC HEATER (CUH-1 & 4): 3 KW, 208 V, 1 PH. CONNECT TO INTEGRAL DISCONNECT SWITCH. EXTEND NEW WIRING IN NEW & EX CONDUIT & RECONNECT TO EX CIRCUIT BREAKER THAT SERVED ELECTRIC HEATER REMOVED DURING DEMOLITION PHASE.
- ELECTRIC HEATER (CUH-2): 1.5 KW, 120 V, 1 PH. CONNECT TO INTEGRAL DISCONNECT SWITCH. EXTEND NEW WIRING IN NEW & EX CONDUIT & RECONNECT TO EX CIRCUIT BREAKER THAT SERVED ELECTRIC HEATER REMOVED DURING DEMOLITION PHASE.
- ELECTRIC HEATER (CUH-1): 3 KW, 208 V, 1 PH. CONNECT TO INTEGRAL DISCONNECT SWITCH & CONNECT TO CIRCUIT INDICATED.
- RX (2) 20 A, 1 P CIRCUIT BREAKERS SPACE #18 & 20 OF PANEL 'CC' & REPLACE WITH (1) 20 A, 2 P CIRCUIT BREAKER IN SAME SPACE TO SERVE CUH-1. CB SHALL BE TYPE TO MAINTAIN PANEL ARC RATING. EX PANEL 'CC' IS RATED 225 A, MLO, 208/120 V, 3 PH, 4 W, SQUARE-D TYPE 'NODD'.
- REMOVE DUCT SMOKE DETECTOR TEST SWITCH.
- REINSTALL EX INTERACTIVE WHITEBOARD (IWB) MOUNTING BRACKETS & WHITEBOARD CENTERED ON TEACHING WALL. COORDINATE ALL WORK WITH HCPS.
- CONTRACTOR SHALL MODIFY SHELF SYSTEM TO PROVIDE PANEL CLEARANCE PER NEC.
- PROVIDE NEW RECEPTACLE FOR CONNECTION TO ELECTRIC WATER COOLER (EWC). CONNECT TO EX BRANCH CIRCUIT SERVING EWC IN DEMOLITION PHASE. REPLACE EX CB SERVING EWC WITH 'GFCI' TYPE CB FOR COMPLIANCE WITH NEC.
- AIR HANDLING UNIT OR RTU ON ROOF ABOVE. RELOCATE ALL UTILITIES (I.E. CABLES, CONDUIT, ETC.) BELOW UNIT AS REQUIRED FOR INSTALLATION OF UNIT STRUCTURAL SUPPORT, DUCTWORK AND/OR PIPING.
- PROVIDE 120 VOLT POWER FOR CONNECTION TO DOOR HARDWARE POWER SUPPLY. COORDINATE WITH SECURITY CONTRACTOR.
- PROVIDE 3/4" HOLE DRILLED INTO MULLION AT 42" AFF ON EXTERIOR SIDE AND ABOVE ACCESSIBLE CEILING ON INTERIOR SIDE. PROVIDE PULL STRING THROUGH BOTH HOLES FOR USE BY SECURITY CONTRACTOR TO INSTALL CABLING FOR CARD READER. COORDINATE ALL WORK WITH SECURITY CONTRACTOR.

**GENERAL NOTES:**

- REFER TO E001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- REFER TO TYPICAL CLASSROOM SPECIAL SYSTEM LAYOUT ON DRAWING E403A FOR INFORMATION PERTAINING TO PA, AUDIO / VISUAL, & TELECOM SYSTEMS.
- REFER TO DRAWING E201, E202 & E207 FOR MECHANICAL EQUIPMENT SCHEDULES.

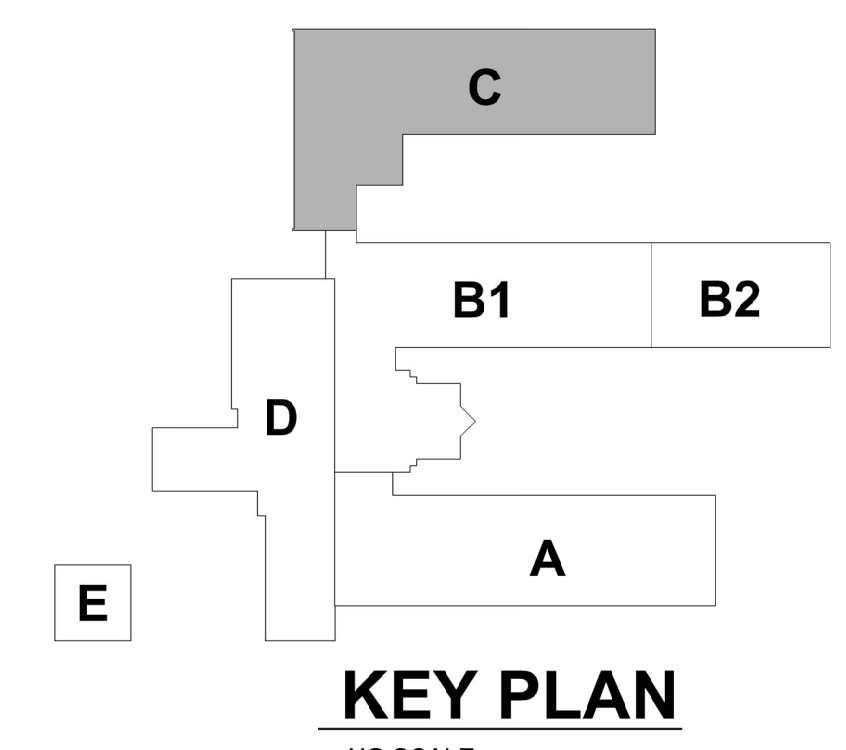


#315

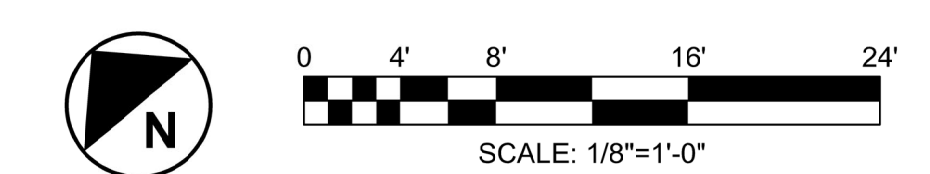
#316

#318

REFER TO E204  
 FOR CONTINUATION

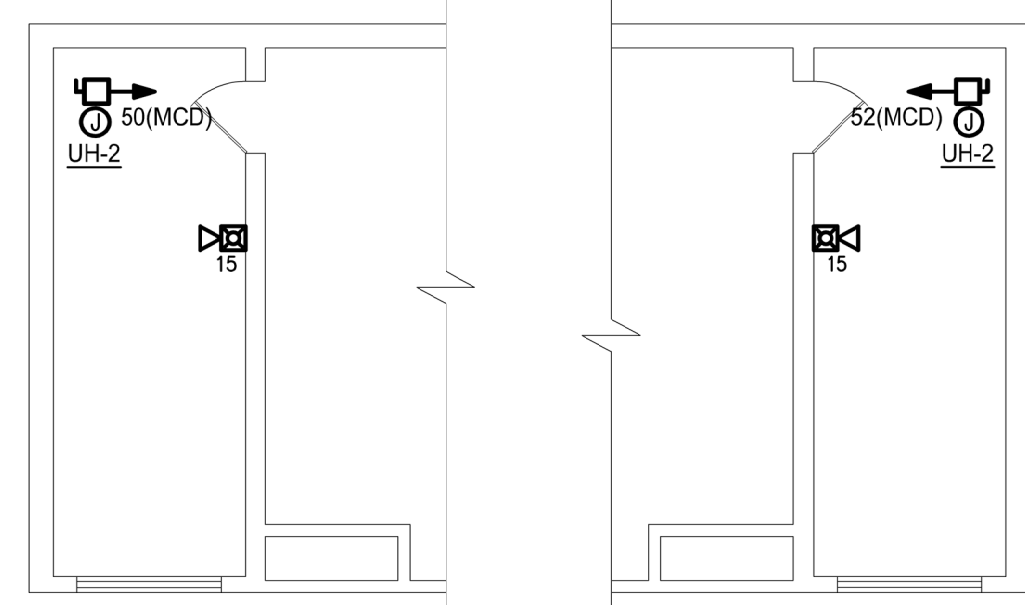


**KEY PLAN**  
 NO SCALE

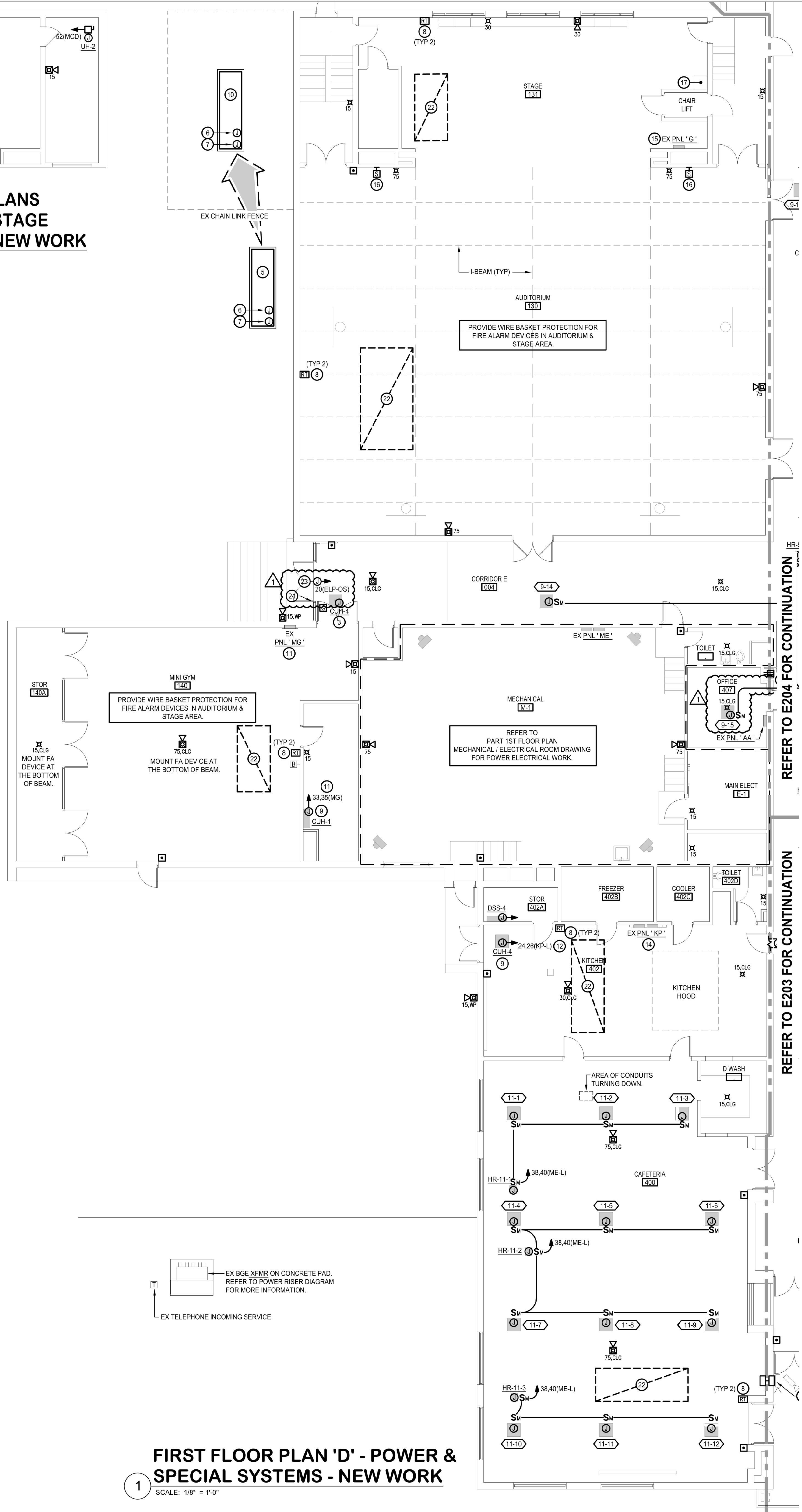


SCALE: 1/8" = 1'-0"

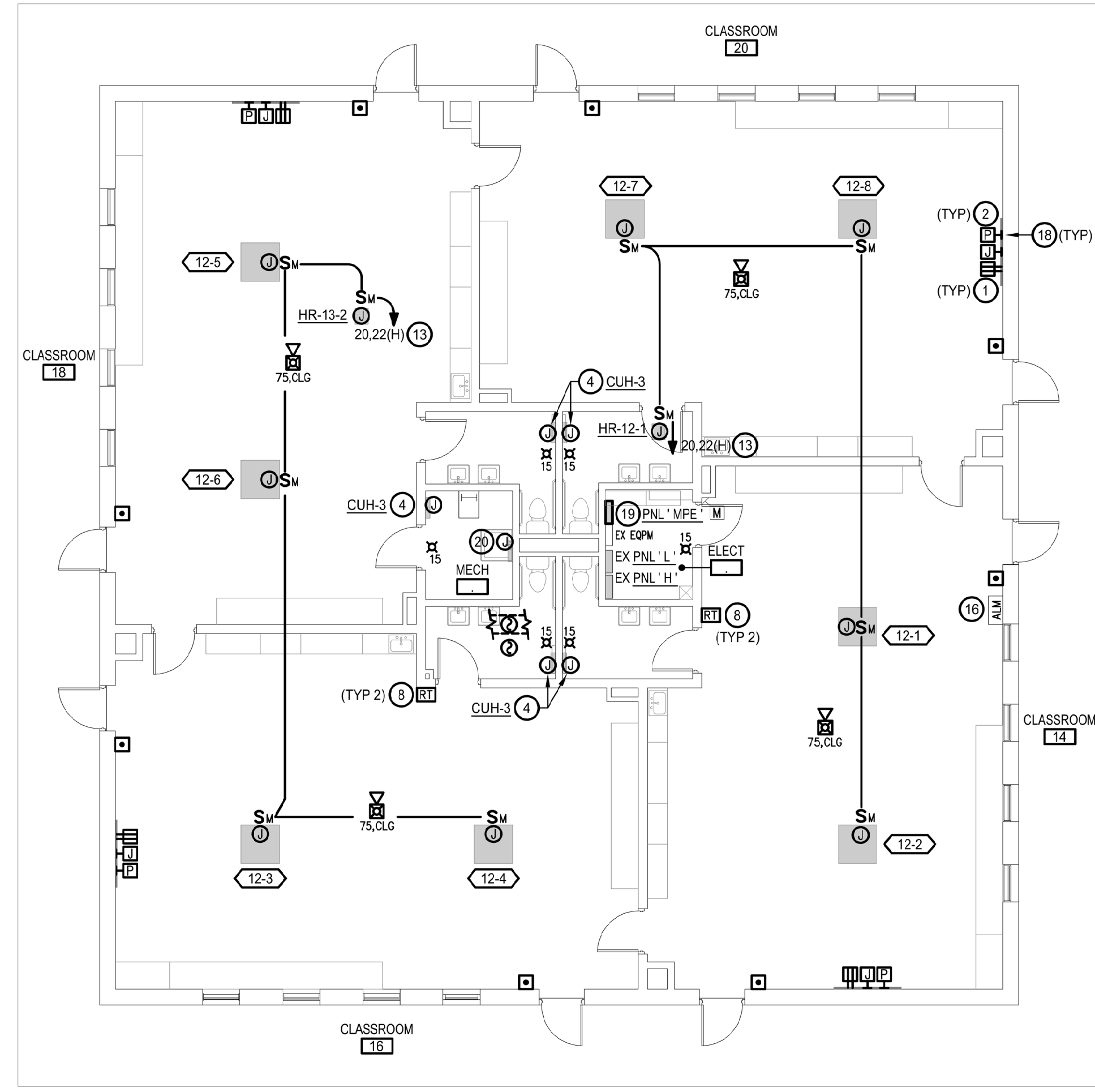




**PART FLOOR PLANS  
UPPER LEVEL STAGE  
ELECTRICAL - NEW WORK**  
SCALE: 1/8" = 1'-0"



**FIRST FLOOR PLAN 'D' - POWER & SPECIAL SYSTEMS - NEW WORK**  
SCALE: 1/8" = 1'-0"



**FIRST FLOOR PLAN 'E' - POWER & SPECIAL SYSTEMS - NEW WORK**  
SCALE: 1/8" = 1'-0"

**GENERAL NOTES:**

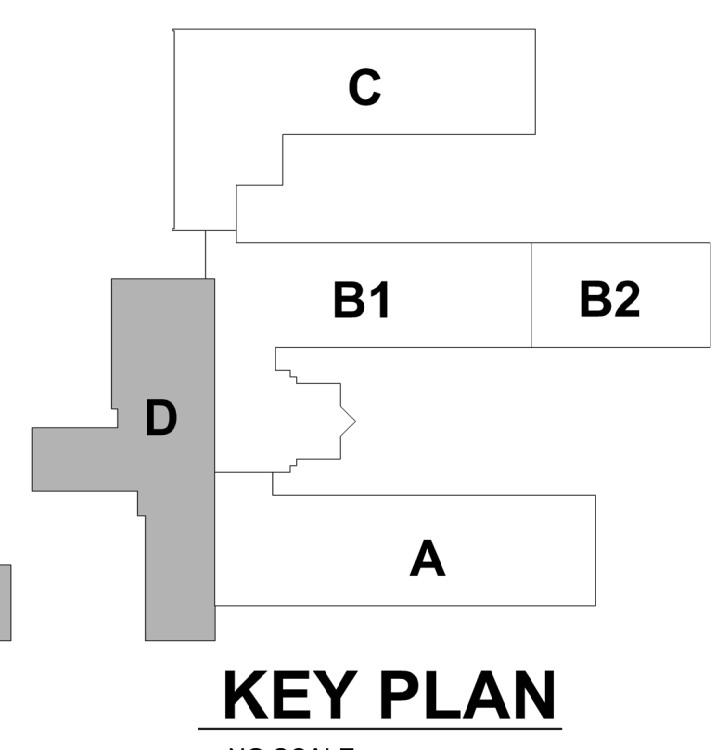
- REFER TO E001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- REFER TO TYPICAL CLASSROOM SPECIAL SYSTEM LAYOUT ON DRAWING E403A FOR INFORMATION PERTAINING TO PA, AUDIO / VISUAL, & TELECOM SYSTEMS.
- REFER TO DRAWING E201, E202 & E207 FOR MECHANICAL EQUIPMENT SCHEDULES.

**DRAWING NOTES:**

- RECEPTACLE FOR WALL MOUNTED PROJECTOR. CONNECT TO BRANCH CIRCUIT THAT SERVED PROJECTOR PRIOR TO DEMOLITION. MOUNT RECEPTACLE TIGHT TO TOP OF CHALK / MARKER / WHITE BOARD. REFER TO PROJECTOR MOUNTING DETAIL ON DRAWING E403A & GENERAL NOTE #23 ON DRAWING E001.
- SURFACE MOUNTED EMPTY OUTLET BOX FOR PROJECTOR MOUNTED ADJACENT TO PROJECTOR RECEPTACLE. EXTEND SURFACE METAL RACEWAY FROM OUTLET BOX TO ABOVE CEILING. DEVICE, DEVICE PLATE & WIRING WILL BE PROVIDED BY HCPS. REFER TO PROJECTOR MOUNTING DETAIL ON DRAWING E403A & GENERAL NOTE #23 ON DRAWING E001.
- ELECTRIC HEATER (CUH-1 & 4): 3 KW, 208 V, 1 PH. CONNECT TO INTEGRAL DISCONNECT SWITCH. EXTEND NEW WIRING IN NEW & EX CONDUIT & RECONNECT TO EX CIRCUIT BREAKER THAT SERVED ELECTRIC HEATER REMOVED DURING DEMOLITION PHASE.
- ELECTRIC HEATER (CUH-3): 0.75 KW, 120 V, 1 PH. CONNECT TO INTEGRAL DISCONNECT SWITCH. EXTEND NEW WIRING IN NEW & EX CONDUIT & RECONNECT TO EX CIRCUIT BREAKER THAT SERVED ELECTRIC HEATER REMOVED DURING DEMOLITION PHASE.
- TEMPORARY LOCATION FOR EMERGENCY GENERATOR SET UNTIL AIR COOLED CHILLER IS REMOVED.
- JACKET HEATER: 3 KW, 208 V, 1 PH. CONNECT TO CIRCUIT
- BATTERY CHARGER: 120 VAC. CONNECT TO CIRCUIT
- REMOTE DUCT SMOKE DETECTOR TEST SWITCH
- ELECTRIC HEATER (CUH-1 & 3): 3 KW, 208 V, 1 PH. CONNECT TO INTEGRAL DISCONNECT SWITCH & CONNECT TO CIRCUIT INDICATED.
- PERMANENT LOCATION FOR EMERGENCY GENERATOR SET AFTER AIR COOLED CHILLER IS REMOVED.
- PROVIDE 20 A, 2P CB'S IN SPACES & PANEL INDICATED. MAINTAIN MINIMUM PANEL AIC RATING. PANEL 'MG' IS RATED 100 A MLC, 208 / 120 V, 3 PH, 4W, SQUARE-D TYPE 'NGO'.
- CONNECT TO EX CB AFTER CB FREED UP FROM DEMOLITION PHASE.
- PROVIDE (1) 20 A, 2P CB'S IN SPACES 20 & 22 OF PANEL 'H' TO SERVES VRF CASSETTE. MAINTAIN MINIMUM PANEL AIC RATING. PANEL 'H' IS RATED 200 A MCB, 208 / 120 V, 3 PH, 4W, FPE TYPE 'NAB'.
- CONTRACTOR SHALL INTERCEPT THE FOLLOWING EX BRANCH CIRCUITS & EXTEND TO PANEL 'ELP-OS': #13 (20A, 3P) REFRIGERATOR, #16 (20A, 3P) WALK-IN FREEZER, #22 (20A, 2P) WALK-IN COOLER, #23 (20A, 1P) REFRIGERATOR, #29 (20A, 1P) FREEZER, #31 (20A, 1P) WALK-IN LIGHTS & #38 (20A, 1P) WALK-IN LIGHTS. IN ADDITION, CONTRACTOR SHALL INTERCEPT & EXTEND (2) 20A, 120V BRANCH CIRCUITS SERVING MILK COOLER & ICE CREAM FREEZER (CIRCUITS NOT LABELED IN PANEL).
- CONTRACTOR SHALL INTERCEPT EX BRANCH CIRCUIT & EXTEND TO PANEL 'ELP-OS': #18 (20A, 1P) STAGE CHAIR LIFT.
- PROVIDE WALL MOUNTING BRACKETS FOR SOUND SYSTEM SPEAKERS BEING RELOCATED & INSTALL EX SPEAKERS ON WALL ADJACENT TO GRILL. INTERCEPT EX CABLING, EXTEND TO RELOCATED SPEAKERS & PROVIDE ALL CONNECTIONS. NEW BRACKETS SHALL BE TYPE TO MATCH EX SPEAKERS. PROVIDE WIRE CAGE GUARD FOR SPEAKERS AS MANUFACTURED BY STI OR APPROVED EQUAL. COORDINATE ALL WORK WITH HCPS INCLUSIVE OF FINAL SPEAKER LOCATIONS.
- EX SOUND SYSTEM RACK
- REINSTALL EX INTERACTIVE WHITEBOARD (IWB) MOUNTING BRACKETS & WHITEBOARD CENTERED ON TEACHING WALL. COORDINATE ALL WORK WITH HCPS.
- CONTRACTOR SHALL MODIFY SHELF SYSTEM TO PROVIDED PANEL CLEARANCE PER NEC.
- ATC CONTROL PANEL: 120 VAC. CONNECT TO EX SPARE BREAKER IN PANEL 'L'. IF NO AVAILABLE SPARE BREAKER, PROVIDE 20 A, 1 P CIRCUIT BREAKER IN EX PANEL 'L'. SPACE #11 & MAINTAIN MINIMUM AIC RATING. (PANEL MANUFACTURED BY FPE).
- ELECTRICAL CONNECTION FOR UNIT HEATER (UH-1): 3.3 KW, 277 V, 1 PH. CONNECT TO INTEGRAL DISCONNECT SWITCH & CONNECT TO CIRCUIT INDICATED.
- AIR HANDLING UNIT OR RTU ON ROOF ABOVE. RELOCATE ALL UTILITIES (I.E. CABLES, CONDUIT, ETC.) BELOW UNIT AS REQUIRED FOR INSTALLATION OF UNIT STRUCTURAL SUPPORT, DUCTWORK AND / OR PIPING.
- PROVIDE 120 VOLT POWER FOR CONNECTION TO DOOR HARDWARE POWER SUPPLY. COORDINATE WITH SECURITY CONTRACTOR.
- PROVIDE 3/4" HOLE DRILLED INTO MULLION AT 42" AFF ON EXTERIOR SIDE AND ABOVE ACCESSIBLE CEILING ON INTERIOR SIDE. PROVIDE FULL STRING THROUGH BOTH HOLES FOR USE BY SECURITY CONTRACTOR TO INSTALL CABLING FOR CARD READER. COORDINATE ALL WORK WITH SECURITY CONTRACTOR.

REFER TO E204 FOR CONTINUATION

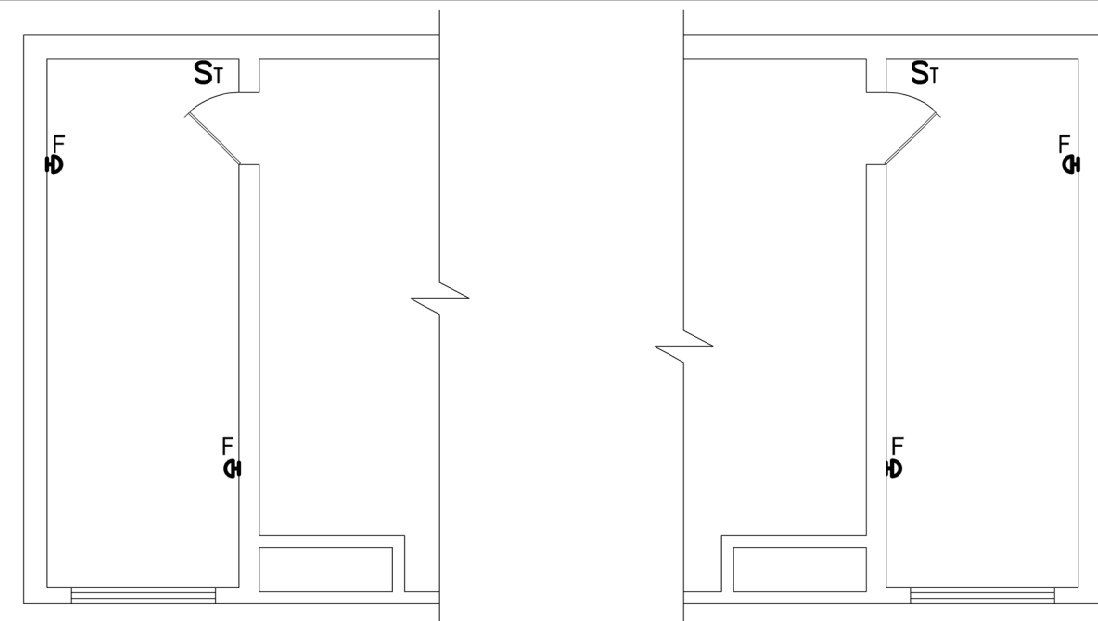
REFER TO E203 FOR CONTINUATION



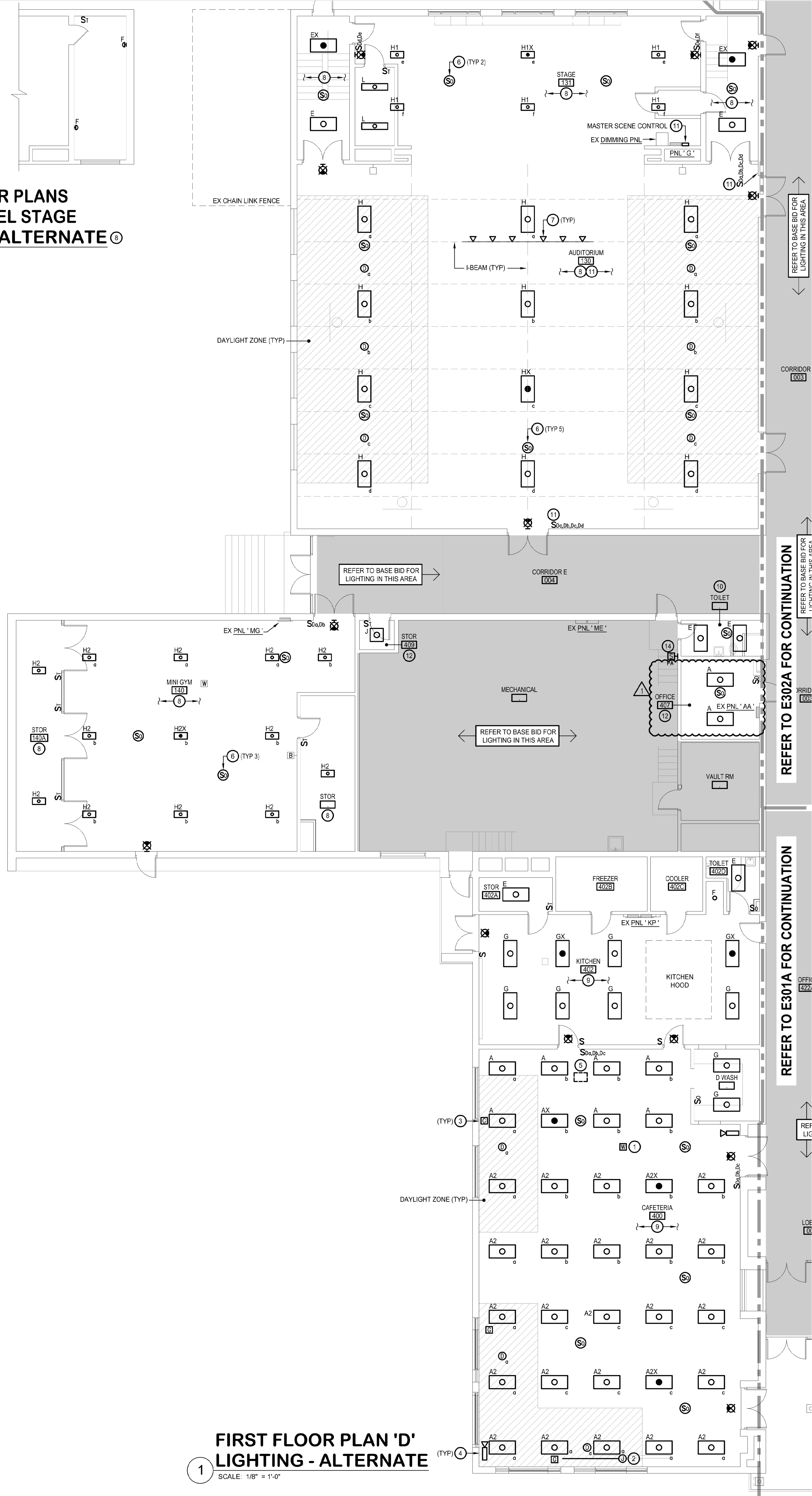
ISSUED FOR:

DATE	DESCRIPTION
09-13-19	DD SUBMISSION
10-25-19	50% CD SUBMISSION
12-13-19	100% IAC SUBMISSION
01-31-20	BID DOCUMENTS
02-21-20	ADDENDUM 1

Printed By: Wiley Burton | 2/24/2020 10:14 AM | ARE: C:\19102.01\Drawings\Acad\A\E206-6 - 1ST FLR PLN\_PWBK55.N



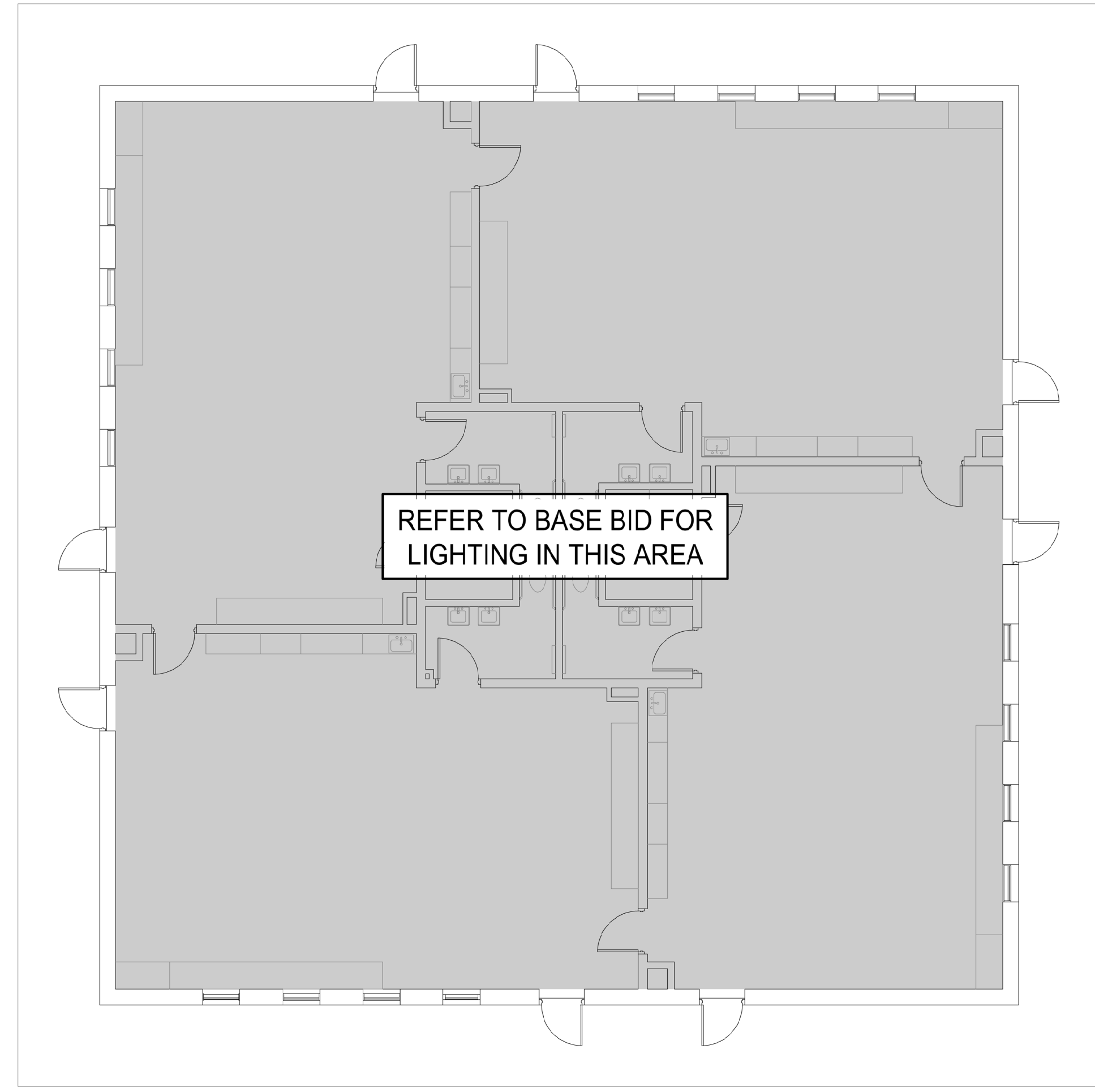
**PART FLOOR PLANS  
UPPER LEVEL STAGE  
LIGHTING - ALTERNATE 2**  
SCALE: 1/8" = 1'-0"



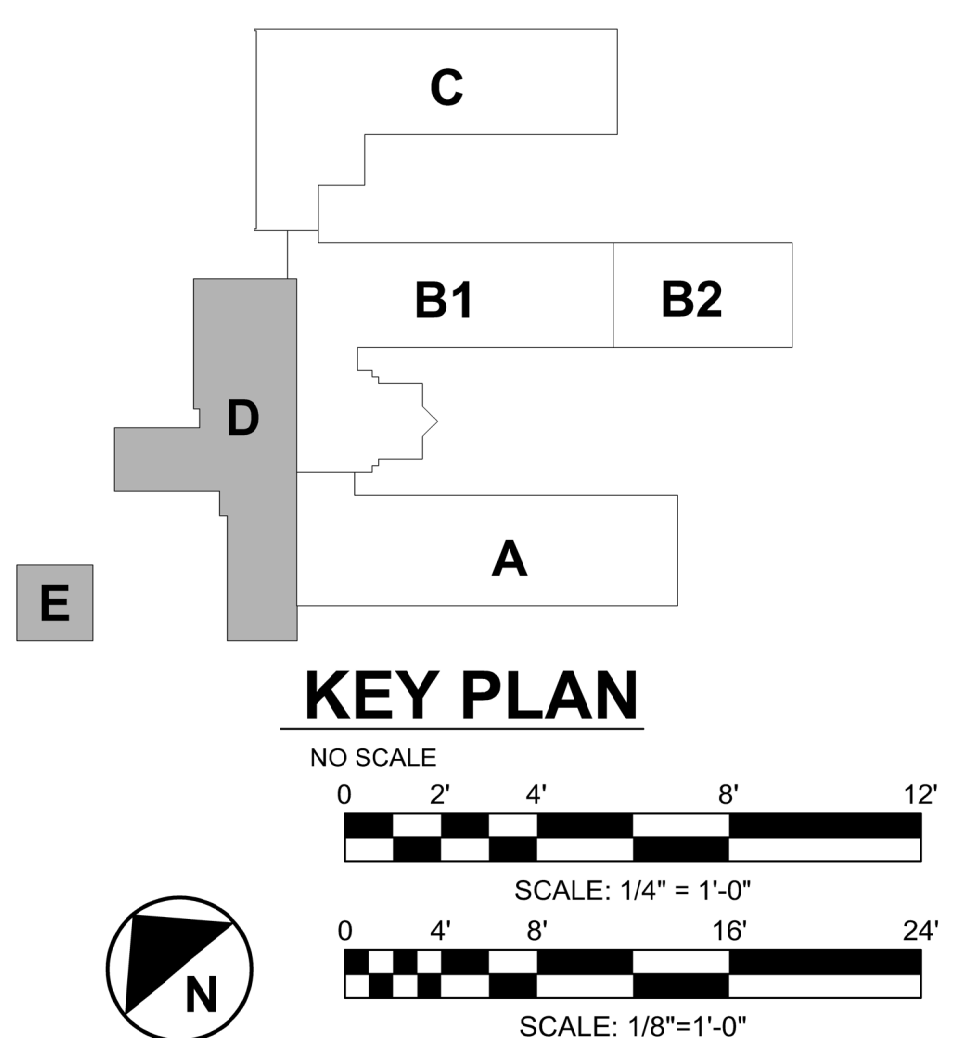
**FIRST FLOOR PLAN 'D'  
LIGHTING - ALTERNATE 1**  
SCALE: 1/8" = 1'-0"

**GENERAL NOTES:**

- REFER TO E001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
  - REFER TO TYPICAL CLASSROOM SPECIAL SYSTEM LAYOUT ON DRAWING E403A FOR INFORMATION PERTAINING TO PA, AUDIO / VISUAL, & TELECOM SYSTEMS.
- DRAWING NOTES:**
- REINSTALL CEILING MOUNTED **WiFi STATION** IN REPLACEMENT CEILING. RESTORE TO WORKING ORDER PRIOR TO DEMOLITION.
  - REINSTALL CEILING MOUNTED **ELECTRIC PROJECTOR SCREEN** IN REPLACEMENT CEILING. RESTORE TO WORKING ORDER PRIOR TO DEMOLITION.
  - REINSTALL CEILING MOUNTED **GLASS BREAK** IN REPLACEMENT CEILING. RESTORE TO WORKING ORDER PRIOR TO DEMOLITION.
  - REINSTALL CEILING MOUNTED **SECURITY CAMERA** IN REPLACEMENT CEILING. RESTORE TO WORKING ORDER PRIOR TO DEMOLITION.
  - CONDUITS TURN DOWN TO EQUIPMENT BELOW.
  - H-BAY, CEILING MOUNTED, LOW VOLTAGE, DUAL TECHNOLOGY OCCUPANCY SENSOR: nLIGHT nCM PDT 6 R.B.
  - EX THEATRICAL LIGHTS MOUNTED ON BATTEN. PROVIDE NEW DIMMABLE LED LAMPS IN CONFIGURATION TO MATCH EX LAMP TYPE (PAR, R, ETC.) LUMEN OUTPUT OF NEW LAMPS SHALL MATCH EX. PROVIDE (2) OF EACH COLOR: RED, AMBER & GREEN. COORDINATE ALL WORK WITH HCPS.
  - CONNECT ALL NORMAL LIGHTING IN AUDITORIUM, MINI GYM, STAGE, STAIRS & (2) AREA ABOVE STAIRS TO CIRCUIT #47(MPS). EMERGENCY LIGHTING TO CIRCUIT #7(BEP-L3).
  - CONNECT ALL NORMAL LIGHTING IN KITCHEN, ALL SUB ROOMS IN KITCHEN, DISHWASHER ROOM & CAFETERIA TO CIRCUIT #49(MDP). EMERGENCY LIGHTING TO CIRCUIT #13(CHP-L5).
  - CONNECT NEW LIGHTING IN THIS ROOM TO ADJACENT LIGHTING CIRCUIT SERVES AREA LEAD TO THIS ROOM.
  - PROVIDE LIGHTING CONTROL IN AUDITORIUM WITH WALL MOUNTED, LOW VOLTAGE, GRAPHIC MASTER SCENE CONTROL, (nLIGHT nPROP GFK. COORDINATE LOCATION WITH HCPS) & (2) WALL MOUNTED, LOW VOLTAGE PRESET SCENE CONTROL, DIMMER SWITCHES (nLIGHT nPROP 2S DX (PRESET 50 / 100 % & MANUALLY RAISE & LOWER).
  - CONNECT ALL NORMAL LIGHTING & LIGHTING CONTROL TO NORMAL LIGHTING SERVING IN ADJACENT CORRIDOR.



**FIRST FLOOR PLAN 'E' - LIGHTING - ALTERNATE 3**  
SCALE: 1/8" = 1'-0"



PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 20513 EXPIRATION DATE: 07/17/2020

ISSUED FOR:

DATE	DESCRIPTION
09-13-19	DD SUBMISSION
10-25-19	50% CD SUBMISSION
12-13-19	100% IAC SUBMISSION
01-31-20	BID DOCUMENTS
02-21-20	ADDENDUM 1

PROJECT NO: 19102.01

SCALE: AS NOTED

DRAWN BY: MB

CHECKED BY: LSF / RAM

DATE: FEBRUARY 21, 2020

SHEET TITLE:  
**FIRST FLOOR PLAN 'D' & 'E'  
LIGHTING - ALTERNATE**

DRAWING NO:  
**E304A**

SECTION 003000 - FORM OF PROPOSAL

Proposal of: \_\_\_\_\_ (firm name)

Re: Roye-Williams Elementary School HVAC Systemic / Plumbing Renovation  
Location: 201 Oakington Road, Havre de Grace, MD 21078

Date: \_\_\_\_\_

To: Board of Education of Harford County  
Harford County Public Schools  
102 South Hickory Avenue  
Bel Air, Maryland 21014

Gentlemen:

Having examined the Instruction to Bidders, the Drawings and the Specification, including Addenda Nos. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_, thereto, and other proposed Contract Documents prepared by Burdette, Koehler, Murphy & Associates, Inc. and having examined the site and other conditions affecting the construction, the undersigned hereby proposes to furnish all labor, materials, equipment and services to perform all work required for the HVAC Systemic / Plumbing Renovation Project to Roye-Williams Elementary in strict accordance with the Contract Documents for the sums listed in the following bid items:

It is understood that if no figure is listed for an Alternate, that the Alternate may be accepted and there shall be no change in the Base Bid amount indicated below:

1. BASE BID:

The Lump Sum Base Bid :

Add \_\_\_\_\_, Dollars (\$ \_\_\_\_\_)

2. ADD ALTERNATE 1: Remove existing lighting fixtures and controls in all other areas of school not already replaced under the base bid. Provide new LED retrofit lighting kits for all existing lighting fixtures. Reinstall retrofitted lighting fixture and existing controls and reconnect to existing branch circuits.

Add \_\_\_\_\_, Dollars (\$ \_\_\_\_\_)

ADD ALTERNATE 2: Remove existing lighting fixtures and controls in all other areas of school not already replaced under the base bid. Provide new LED lighting fixtures and controls. Provide new branch circuits and connect to new lighting panels.

Add \_\_\_\_\_, Dollars (\$ \_\_\_\_\_)

ADD ALTERNATE 3: Provide open bookshelf units in same location of demolished unit ventilators.

Add \_\_\_\_\_, Dollars (\$ \_\_\_\_\_)

3. UNIT PRICES:

A. Unit Price No. 1 – Remove existing duct insulation, seal and re-insulate.

1. Description: Where existing ductwork does not meet the duct pressure testing requirement, remove existing duct insulation, seal and re-insulate ductwork in accordance with specifications. The unit price shall include all costs associated with removing insulation, sealing and re-insulation of existing ductwork.
2. Unit of Measurement: Square feet.
3. Price per Unit of Measurement: \$15.00.

B. Unit Price No. 2 - Earth Excavation with Offsite Disposal:

1. Description: Earth excavation - by machine and disposal offsite
2. Unit of Measurement: Cubic yard
3. Price per Unit of Measurement: \$30.00

C. Unit Price No. 3 - Earth Excavation with Onsite Disposal:

1. Description: Earth excavation - hand and disposal onsite
2. Unit of Measurement: Cubic yard
3. Price per Unit of Measurement: \$90.00

D. Unit Price No. 4 - Trench Excavation with Onsite Disposal:

1. Description: Trench excavation by machine and soil disposal onsite
2. Unit of Measurement: Cubic yard
3. Price per Unit of Measurement: \$15.00

E. Unit Price No. 5 – Trench Excavation with Offsite Disposal:

1. Description: Trench excavation by machine and soil disposal offsite
2. Unit of Measurement: Cubic yard
3. Price per Unit of Measurement: \$120.00

F. Unit Price No. 6 – Unsatisfactory Soil Excavation with Offsite Disposal:

1. Description: Excavate unsatisfactory soil and offsite disposal; Replace with satisfactory soil and compact per specified requirements
2. Unit of Measurement: Cubic yard
3. Price per Unit of Measurement: \$30.00

G. Unit Price No. 7 – Contaminated Soil:

1. Description: Excavate and legally dispose offsite petroleum contaminated soil
2. Unit of Measurement: Cubic yard
3. Price per Unit of Measurement: \$275.00

H. Unit Price No. 8 - MSHA #2 or #57 Stone in Trench & Footing Areas:

1. Description: Undercut and dispose of soil onsite; refill with MSHA #2 or #57 stone and compact per specified requirements in trench areas only
2. Unit of Measurement: Cubic yard
3. Price per Unit of Measurement: \$60.00

I. Unit Price No. 9 - CR-6 or Graded Aggregate Base (GAB) in Trench & Footing Areas:

1. Description: Undercut and dispose of soil onsite; refill with CR-6 or Graded Aggregate Base (GAB) and compact per specified requirements in trench areas only
2. Unit of Measurement: Cubic yard
3. Price per Unit of Measurement: \$55.00

J. Unit Price No. 10 - MSHA #2 or #57 Stone in Open Areas:

1. Description: Undercut and dispose of soil offsite; refill with MSHA #2 or #57 stone and compact per specified requirements in open areas only
2. Unit of Measurement: Cubic yard
3. Price per Unit of Measurement: \$55.00

K. Unit Price No. 11 - Imported Screened Topsoil:

1. Description: Imported screened topsoil and fine graded in place - no material larger than  $\frac{3}{4}$ " in mix
2. Unit of Measurement: Cubic yard
3. Price per Unit of Measurement: \$40.00

L. Unit Price No. 12 - Sodding:

1. Description: Sodding
2. Unit of Measurement: Square yard
3. Price per Unit of Measurement: \$4.50

M. Unit Price No. 13 - Permanent Seeding and Mulch:

1. Description: Permanent seeding and mulch
2. Unit of Measurement: Square yard
3. Price per Unit of Measurement: \$1.50

N. Unit Price No. 14 - Temporary Seeding and Straw:

1. Description: Temporary seeding and straw
2. Unit of Measurement: Square yard
3. Price per Unit of Measurement: \$0.75

O. Unit Price No. 15 - Super Silt Fence:

1. Description: Furnish, install, maintain, and remove super silt fence and grade/restabilize
2. Unit of Measurement: Linear Foot
3. Price per Unit of Measurement: \$12.00

P. Unit Price No. 16 - Silt Fence:

1. Description: Furnish, install, maintain, and remove silt fence and grade/restabilize
2. Unit of Measurement: Linear Foot
3. Price per Unit of Measurement: \$5.50

Q. Unit Price No. 17 - Trench Rock:

1. Description: Remove trench rock haul and dispose of legally offsite
2. Unit of Measurement: Cubic Yard
3. Price per Unit of Measurement: \$225.00

R. Unit Price No. 18 - Open Rock:

1. Description: Remove open rock, haul and dispose of legally offsite
2. Unit of Measurement: Cubic Yard
3. Price per Unit of Measurement: \$125.00

S. Unit Price No. 19 - Damaged HMA Paving:

1. Description: Saw, cut and remove damaged paving, dispose of legally offsite, replace with 4-1/2" thick 12.5mm HMA base course and 1-1/2" thick 9.5mm HMA surface course.
2. Unit of Measurement: Square Yard
3. Price per Unit of Measurement: \$48.00

T. Unit Price No. 20 - Concrete Curb and Gutter:

1. Description: Concrete curb and gutter
2. Unit of Measurement: Linear Foot
3. Price per Unit of Measurement: \$18.00

U. Unit Price No. 21 - Concrete Sidewalk:

1. Description: Concrete sidewalk including excavation, GAB base course compacted per specified requirements



2. Unit of Measurement: Square Foot
3. Price per Unit of Measurement: \$6.50

V. Unit Price No. 22 – Hot Mixed Asphalt (HMA) Sidewalk:

1. Description: Hot mixed asphalt sidewalk including excavation, GAB base course compacted per specified requirements
2. Unit of Measurement: Square Yard
3. Price per Unit of Measurement: \$40.00

W. Unit Price No. 23 – Firestopping Method I:

1. Description: Includes the complete cost per void to fill large voids per specs and drawings. This includes 2-inch thick mineral wool batts at 6” to 8” openings.
2. Unit: Each
3. Price: \$40.00

X. Unit Price No. 24: Firestopping Method II (up to 5 Sq. Ft.):

1. Description: Includes the complete cost per void to fill large voids per specs and drawings. This includes rated drywall construction for openings greater than 8”.
2. Unit: Each
3. Price: \$50.00

Y. Unit Price No. 25: Firestopping Method III (over 5 Sq. Ft.):

1. Description: Includes the complete cost per void to fill large voids per specs and drawings. This includes rated drywall construction for openings greater than 8”.
2. Unit: Sq. Ft.
3. Price: \$10.00

Z. Unit Price No. 26: HVAC Supply and Return Piping:

1. Description: Fully insulated piping and fittings as specified.
2. Unit: LF
3. Price:
  - a. 3/4” - \$20.00
  - b. 1” - \$22.00
  - c. 1-1/4” - \$25.00
  - d. 1-1/2” - \$27.00
  - e. 2” - \$31.00
  - f. 2-1/2” - \$42.00
  - g. 3” - \$48.00
  - h. 4” - \$61.00
  - i. 5” - \$74.00

AA. Unit Price No. 27: Isolation Valves:

1. Description: Includes the complete cost per valve for providing isolation valves on heating water piping. The valve sizes shall be: 3/4", 1", 1-1/4", 1-1/2", 2", 2-1/2", 3", 4" and 6". Valve types shall be as specified.
2. Unit: Each
3. Price:
  - a. 3/4" - \$75.00
  - b. 1" - \$90.00
  - c. 1-1/4" - \$130.00
  - d. 1-1/2" - \$170.00
  - e. 2" - \$200.00
  - f. 2-1/2" - \$800.00
  - g. 3" - \$1,100.00
  - h. 4" - \$1,250.00
  - i. 5" - \$1,950.00

BB. Unit Price No. 28: Ductwork Insulation:

1. Description: 1-1/2 flexible blanket type, 1.0 PCF minimum density and reinforced foil-scrim-kraft vapor barrier facing.
2. Unit: Sq. Ft.
3. Price: \$3.75

CC. Unit Price No. 29: Manual Dampers (Rigid Frame):

1. Description: Opposed blade action locking quadrant operator.
2. Unit: Sq. Ft.
3. Price: \$60.00

DD. Unit Price No. 30: Vinyl Composition Tile (VCT) Replacement:

1. Description: Includes the complete cost per sq. ft. of replacing existing VCT with new VCT. New VCT shall match specified product.
2. Unit: Sq. Ft.
3. Price: \$1.90

EE. Unit Price No. 31: Ceiling Grid and Acoustical Tile Replacement:

1. Description: Replace 2' x 4' ceiling grid and acoustical tile to match existing.
2. Unit: Sq. Ft.
3. Price: \$3.75

FF. Unit Price No. 32: Fiber Reinforced Wallboard and Metal Stud Partition:

1. Description: Includes complete cost per sq. ft. for providing fiber reinforced wallboard on metal stud framing with taping and finishing of wallboard ready to paint.

2. Unit: Sq. Ft.
3. Price: \$6.50

GG. Unit Price No. 33: Vinyl Wall Base:

1. Description: Includes complete cost of complete installation of new 6 inch vinyl base on new or existing walls.
2. Unit: LF
3. Price: \$2.50

HH. Unit Price No. 34: Painting Wallboard:

1. Description: Includes complete cost per sq. ft. of painting finished wallboard as specified.
2. Unit: Sq. Ft.
3. Price: \$0.55

II. Unit Price No. 35: Painting CMU:

1. Description: Includes complete cost per sq. ft. of painting CMU walls as specified, including block filler.
2. Unit: Sq. Ft.
3. Price: \$0.50

JJ. Unit Price No. 36: Demolish Slab On-Grade:

1. Description: Includes removal of demo material.
2. Unit: Sq. Ft.
3. Price: \$25.00

KK. Unit Price No. 37: Patch and Repair Damage or Opening in Slab On-Grade:

1. Description: Includes steel reinforcement where applicable.
2. Unit: Sq. Ft.
3. Price: \$6.00

LL. Unit Price No. 38: Structural Steel:

1. Description: Fabricate and install structural steel.
2. Unit: Ton
3. Price: \$3,900.00

MM. Unit Price No. 39: Install New Opening through Elevated Concrete Slab (Applies to Openings 1'-0" x 1'-0" and Larger):

1. Description: Includes all required steel support framing.

2. Unit: Each
3. Price: \$750.00

NN. Unit Price No. 40: Infill Opening in Elevated Concrete Slab:

1. Description: Includes all required steel support framing.
2. Unit: Each
3. Price: \$500.00

OO. Unit Price No. 41: Existing Structural Members:

1. Description: Reinforce existing structural members.
2. Unit: Ton
3. Price: \$5,000.00

PP. Unit Price No. 42: Install Opening through Masonry Wall:

1. Description: Applies to openings with a width if 12 inches or greater, includes masonry lintel and removal of demo material.
2. Unit: Each
3. Price: \$500.00

QQ. Unit Price No. 43: Infill Opening in Masonry Wall:

1. Description: Infill opening in masonry wall.
2. Unit: Sq. Ft.
3. Price: \$15.00

RR. Unit Price No. 44: Receptacle:

1. Description: NEMA 5-20R receptacle complete with 50 feet if 2 #12 and 1 #12G in 3/4-inch EMT.
2. Unit: Unit
3. Price: \$300.00

SS. Unit Price No. 45: Telephone Drop:

1. Description: Cat 5E telephone jack complete with testing and termination. Include 150 feet of Cat 5E plenum cable.
2. Unit: Unit
3. Price: \$200.00

TT. Unit Price No. 46: Data Drop:

1. Description: Cat 5E data jack complete with testing and termination. Include 150 feet of Cat 5E plenum cable.

- 2. Unit: Unit
- 3. Price: \$200.00

UU. Unit Price No. 47: Video Drop:

- 1. Description: Video jack. Include 100 feet of coaxial cable.
- 2. Unit: Unit
- 3. Price: \$150.00

VV. Unit Price No. 48: Fire Alarm Strobe:

- 1. Description: 100 cd wall mounted fire alarm strobe complete with 50 feet of fire alarm wiring in 3/4-inch EMT conduit. Include all testing and programming of device.
- 2. Unit: Unit
- 3. Price: \$400.00

WW. Unit Price No. 49: Fire Alarm/Horn Strobe:

- 1. Description: 100 cd wall mounted fire alarm strobe and horn complete with 50 feet of fire alarm wiring in 3/4-inch EMT conduit. Include all testing and programming of device.
- 2. Unit: Unit
- 3. Price: \$450.00

XX. Unit Price No. 50: Emergency LED Exit Sign:

- 1. Description: Single face, complete with 50 feet of 2 #12 and 1 #12G in 3/4-inch EMT conduit.
- 2. Unit: Unit
- 3. Price: \$450.00

**SUBSTITUTIONS REQUESTS:**

Indicate proposed substitutions below and attach copies of "Substitution Request Form" referenced in Section 016000A.

<u>Proposed Substitution</u>	<u>Price Change</u>
	\$ _____
	\$ _____
	\$ _____
	\$ _____

EXECUTION:

The undersigned affirms that the Base Bid stated above represents the entire cost of the Project in accordance with the Bid Documents and that no claim shall be made on account of any increase in wage, scales, material prices, taxes, insurance, cost indexes, or any other rate affecting the construction industry and/or this project.

The undersigned agrees, upon receipt of written notice of the acceptance of this bid within (60) calendar days after the date of opening of bids to execute the standard form of contract in accordance with the bid as accepted, and to give performance and payment bond with good and sufficient surety or sureties, for the faithful performance of the contract and for the protection of all persons supplying labor and materials in the prosecution of the work, within ten (10) calendar days after the prescribed forms are presented for signature.

Signature of:

X \_\_\_\_\_  
Bidder if the bidder is an individual

\_\_\_\_\_  
Name and Title (printed)

Registered Maryland Contractor No. \_\_\_\_\_

**OR**

X \_\_\_\_\_  
Partner if the bidder is a partnership

\_\_\_\_\_  
Name and Title (printed)

Registered Maryland Contractor No. \_\_\_\_\_

**OR**

X \_\_\_\_\_  
Officer if bidder is a corporation

\_\_\_\_\_  
Name and Title (printed)

Registered Maryland Contractor No. \_\_\_\_\_

**ALL**

Subscribed and sworn before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

X \_\_\_\_\_  
Notary Public

My Commission expires: \_\_\_\_\_

NOTE: The following items shall be completed and submitted as attachments to the Bid at the time of the Bid opening:

- \*1. Section 005000 Bid Bond
- \*2. Section 006600 MBE Attachment 1A: MBE Utilization and Fair Solicitation Affidavit and MBE Participation Schedule
- 3. Section 006300 Affidavit of Qualification to Bid

**\*NOTE: Items 1 and 2 must be submitted in proper form and content at the time of bid opening or the bid will be rejected as non-responsive.**

END OF SECTION 003000

SECTION 015300 - EXISTING FURNISHINGS MOVE, STORAGE, AND PROTECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Shipping Containers
- B. Temporary Relocation of Owner Furnishings

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions.

1.3 RELATED SECTIONS

- A. Division 01 Specification Sections.

PART 2 - PRODUCTS

2.1 SHIPPING CONTAINERS

A. SIDE OPEN STEEL DRY CONTAINERS

1. Container shall meet the ISO Container standards ISO 668 - Series 1 freight containers - Classification external dimensions and ratings, ISO 830 - Terminology in relation to freight container, ISO 1161 - Series 1 freight containers - Corner fittings Specification, ISO 1496-1 - Series 1 freight containers - Specification and testing.
2. Shall be constructed to be suitable for transportation on a flat bed or skeletal chassis secured by twistlocks or equivalent at the bottom corner fittings.
3. Outside Dimensions:
  - a. 20' Dry Cargo
    - 1) 19.84'x8.00'x8.50'
  - b. 40' Dry Cargo
    - 1) 40.00'x8.00'x8.5'
4. Construction
  - a. Container shall be constructed per the ISO 1496 standards.
  - b. Containers shall be weatherproof and provided with a coating to prohibit



oxidation of the steel structure.

### PART 3 - EXECUTION

#### 3.1 GENERAL

- A. Schedule a meeting two weeks prior to the start of each phase to discuss the removal, storage of existing furnishings.
- B. Movers shall coordinate with HCPS prior too and during each phase the storage and movement of existing furnishings.
- C. Two (2) 20' shipping containers shall be furnished to the owner for their use, two (2) additional 40' shipping containers shall be procured by the contractor for the duration of this project, with a third as needed.
- D. On-site storage subject to Owner approval and inspection.

#### 3.2 REMOVAL, STORAGE AND REPLACEMENT OF EXISTING FURNISHINGS

- A. It should also be expected to have several pick ups (removal) of packed boxes and furniture/supplies from spaces prior to beginning construction and during each phase.
- B. Prior to commencement of construction, remove packed teachers' supplies, furniture, and pre-boxed items from existing areas of construction and store, in Contractor-furnished on- site shipping containers.
- C. Furnishings that remain within the room shall be protected from damage.
- D. Stored items shall be protected from vandalism, and secured/protected from any dust and/or weather damage.
- E. Upon completion of the Construction phase, return packaged teachers' supplies, furniture, and pre-boxed items to designated rooms/locations within the School under direction from HCPS.
- F. Unpack teachers' supplies and place in designated areas, as directed by the School officials.
- G. Removal and re-installation of the School safe may also be included in scope of existing furnishings move.
- H. Books, paper, music instruments and other items adversely affected by high temperature and/or humidity must be stored and protected in off-site bonded warehouse.
- I. The Contractor shall be responsible for missing and/or damaged items.

3.3 ENCLOSED STORAGE

- A. Store products, subject to damage by the elements, in substantial weathertight enclosures.
- B. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.

3.4 MAINTENANCE OF STORAGE

- A. Periodically inspect stored products on a schedule basis.
- B. Maintain a log of inspections available to Owner on request.
- C. Verify that surfaces of products exposed to the elements are not adversely affected and that any weathering of finishes.

END OF SECTION 015300

SECTION 088000 - GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Glass.
- B. Glazing compounds and accessories.
- C. Insulated Metal Window Panels.

1.02 REFERENCE STANDARDS

- A. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
- B. ASTM C1036 - Standard Specification for Flat Glass.
- C. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.
- D. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings.
- E. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation.

1.03 SUBMITTALS

- A. Product Data on Glass Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
- B. Samples: Submit two samples 12 x12 inch in size of glass and plastic units, showing coloration and design.
- C. Glazing Schedule: Use same designations indicated on Drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location. Coordinate with shop drawings for windows, storefronts and curtain walls.

1.04 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA Glazing Manual and FGMA Sealant Manual for glazing installation methods.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience.

1.05 FIELD CONDITIONS

- A. Do not install glazing when ambient temperature is less than 50 degrees F.
- B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.06 WARRANTY

- A. Sealed Insulating Glass Units: Provide a ten (10) year warranty to include coverage for seal failure, interpane dusting or misting, including replacement of failed units.

PART 2 PRODUCTS

2.01 GLAZING TYPES

- A. General:
  - 1. All glazing within doors and within 24 inches of door edges over 9 square feet are to meet Category II for impact safety rating. All glazing within doors and within 24 inches of door edges less than 9 square feet to meet Category I for impact safety rating.
- B. Type GL-1 - Sealed Insulating Glass Units: Vision glazing, low-E.
  - 1. Application(s): Locations as indicated on drawings.
  - 2. Basis of Design: PPG Industries, Inc: [www.ppgideascapescapes.com](http://www.ppgideascapescapes.com).
  - 3. Between-lite space filled with air: 1/2 inch.
  - 4. Outboard Lite: Heat-strengthened float glass, 1/4 inch thick, minimum.
  - 5. Coating: PPG Solarban 60 on # 2 surface, no coating on #3 surface.
  - 6. Tint: None (clear).
  - 7. Inboard Lite: Heat-strengthened float glass, 1/4 inch thick.
  - 8. Tint: None (clear).
  - 9. Provide fully tempered float glass in lieu of heat-strengthened float glass, where safety glass is required by Code.
  - 10. Thermal Resistance (U-Value): 0.38 Maximum.
  - 11. Total Visible Light Transmittance: 65% Minimum.

12. Total Solar Heat Gain Coefficient: 0.38 Maximum.
  13. Total Thickness: 1 inch.
- C. Type GL-2 - Single Safety Glazing: Non-fire-rated, laminated.
1. Applications: Locations as indicated on drawings.
    - a. Glazing in doors shall match type of glazing surrounding doors, unless noted otherwise.
  2. Type: Laminated safety glass as specified.
  3. Tint: Clear.
  4. Thickness: 1/4 inch.
  5. Glazing Method: Gasket glazing.
  6. Safety Category Class: II for glazing greater than 9 square feet within doors and within 24 inches of door edges. For glazing less than 9 square feet and within 24 inches of door egress: Category I.
    - a. Shall comply with IBC 2015, Section 2406.
- D. Type GL-3 - Insulated Metal Window Panel Units.
1. Basis of Design: Mapes Panels, LLC.
  2. Properties:
    - a. Thickness - 1 inch.
    - b. Panel fabrication substrate:
      - 1) Exterior - High density tempered hardboard and mapeshield impact resistant layer.
      - 2) Interior - High density tempered hardboard.
      - 3) Core - 2-lb density polystyrene.
    - c. Finish:
      - 1) Exterior - Porcelain on embossed aluminum.
      - 2) Interior - Porcelain on embossed aluminum.
      - 3) Color - As selected by Architect from full line of colors.

## 2.02 EXTERIOR GLAZING ASSEMBLIES

- A. Structural Design Criteria: Select type and thickness to withstand dead loads and wind loads acting normal to plane of glass at design pressures calculated in accordance with ASCE 7.
  - 1. Use the procedure specified in ASTM E1300 to determine glass type and thickness.
  - 2. Limit glass deflection to 1/200 or flexure limit of glass, whichever is less, with full recovery of glazing materials.
  - 3. Thicknesses listed are minimum.
- B. Air and Vapor Seals: Provide completed assemblies that maintain continuity of building enclosure vapor retarder and air barrier:
  - 1. In conjunction with vapor retarder and joint sealer materials described in other sections.
  - 2. To maintain a continuous air barrier and vapor retarder throughout the glazed assembly from glass pane to heel bead of glazing sealant.

## 2.03 GLASS MATERIALS

- A. Float Glass Manufacturers:
  - 1. Guardian Industries Corp: [www.sunguardglass.com/#sle](http://www.sunguardglass.com/#sle).
  - 2. Pilkington North America Inc: [www.pilkington.com/na](http://www.pilkington.com/na).
  - 3. PPG Industries, Inc: [www.ppgideascales.com/#sle](http://www.ppgideascales.com/#sle).
  - 4. Viracon: [www.viracon.com](http://www.viracon.com).
- B. Float Glass: All glazing is to be float glass unless otherwise indicated.
  - 1. Annealed Type: ASTM C1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select).
  - 2. Heat-Strengthened and Fully Tempered Types: ASTM C1048.
  - 3. Tinted Types: Color and performance characteristics as indicated.
  - 4. Thicknesses: As indicated; for exterior glazing comply with specified requirements for wind load design regardless of specified thickness.

2.04 SEALED INSULATING GLASS UNITS (GL-1)

- A. Sealed Insulating Glass Units: Types as indicated.
1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
  2. Edge Spacers: Aluminum, bent and soldered corners; mill finish.
  3. Edge Seal: Glass to elastomer with supplementary silicone sealant.
  4. Edge Seal Color: gray.
  5. Purge interpane space with dry hermetic air.

2.05 ELASTOMERIC GLAZING SEALANTS

- A. General: Provide products of type indicated, complying with the following requirements:
1. Compatibility: Select glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
  2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
  3. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range for this characteristic.
- B. Elastomeric Glazing Sealant Standard: Comply with ASTM C 920 and for each liquid-applied, chemically curing sealant and ASTM C 920 classifications for type, grade, class, and uses. One part silicone rubber glazing sealant: Elastomeric silicone sealant complying with FS TT-S-001543, Class A, non-sag. Provide acid type recommended by manufacturer where only non porous bond surfaces are contacted; provide nonacid type recommended by manufacturer where one or more porous bond surfaces are contacted.
1. Additional Movement Capability: Where additional movement capability is specified in the Glazing Sealant Schedule, provide products with the capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, to withstand the specified percentage change in the joint width existing at time of installation and remain in compliance with other requirements in ASTM C 920 for uses indicated.

- C. C. Glazing Sealant for Fire-Resistive Glazing Products: Identical to product used in test assembly to obtain fire-protection rating.

#### 2.06 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tape: Preformed, butyl-based elastomeric tape with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800:
  - 1. Locations: For glazing over 75 united inches.

#### 2.07 GLAZING ACCESSORIES

- A. Setting Blocks: 100% Silicone, 80 to 90 Shore A durometer hardness, ASTM C864 Option I. Length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.

### PART 3 EXECUTION

#### 3.01 EXAMINATION

- A. Verify that openings for glazing are correctly sized and within tolerance.
- B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

#### 3.02 PREPARATION

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

#### 3.03 INSTALLATION - EXTERIOR/INTERIOR DRY METHOD (GASKET GLAZING)

- A. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.
- B. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.
- C. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.



3.04 CLEANING

- A. Remove glazing materials from finish surfaces.
- B. Remove labels after Work is complete.
- C. Clean glass and adjacent surfaces.

END OF SECTION

96 in



**Larry Hogan, Governor**  
**Boyd Rutherford, Lt. Governor**

**Building Bright**

**Futures in Maryland**

**The State of Maryland and the** \_\_\_\_\_ **Board of Education are:**  
(Name of County)

\_\_\_\_\_ **at the**  
(Name of Project)

\_\_\_\_\_ **at the**  
(Name of School)

Public School Construction Program Architect: \_\_\_\_\_ Contractor: \_\_\_\_\_  
(Name of Architect) (Name of Contractor)

72 in

**The Maryland General Assembly**  
**Adrienne A. Jones, Speaker of the House**  
**Bill Ferguson, President of the Senate**

**Board of Public Works**  
**Larry Hogan, Governor**  
**Peter Franchot, Comptroller**  
**Nancy K. Kopp, Treasurer**

SECTION 263213 - DIESEL GENERATOR SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Drawings and Division-26 Section, Basic Electrical Materials and Methods, apply to this Section.

1.2 SUMMARY

- A. The Contractor shall furnish and install a factory assembled diesel-engine-driven generator set including fan, radiator, rigid mounting base, vibration isolators, silencer, overcurrent protection, day tank, sub-base fuel tank, controls and all accessories specified herein and as required for a complete and functional system.
- B. The diesel-engine-driven generator system shall comply with the requirements of NFPA 110, Type 10, Level 1, Class 24 emergency power supply systems.

1.3 SUBMITTALS

- A. Submit manufacturer's data sheets, wiring schematics installation dimensional drawings for Owner/Engineer, review, comments, and/or approval.
- B. Identify all specified items on submittals to assure compliance and ease of review and/or approval.
- C. Prior to final test and acceptance, submit final data sheets, schematics and dimensional drawings in neat brochure form.
- D. Submittal Data Required:
  - 1. Complete installation drawings, including plan view and elevation with connection of required utilities clearly indicated.
  - 2. Engine/generator controls.
  - 3. Actual electrical schematic, interconnection, and control diagrams.
  - 4. Exhaust silencer and vibration isolators.
  - 5. Battery, battery rack, and battery charger data and installation details.
  - 6. Engineering performance data sheets describing engine, engine performance, fuel consumption rates at 1/4, 1/2, 3/4 and full load, ventilation and combustion air CFM generator details and performance data.
  - 7. The manufacturer shall submit a copy of the specifications with each sub-

paragraph noted with the term, "compliance", "deviation", or "alternate".

- a. By noting the term "compliance" it shall be understood that the manufacturer is in full compliance with the item specified and will provide exactly the same with no deviations.
- b. By noting the term "deviation" it shall be understood that the manufacturer prefers to provide a different component in lieu of that specified. Manufacturer shall indicate all deviations.
- c. By noting the term "alternate" it shall be understood that the manufacturer proposes to provide the same operating function but prefers to do it in a different manner. Any alternate shall be fully described as to what the manufacturer proposes to provide.

#### 1.4 QUALITY ASSURANCE

- A. All components of and the complete installation of the diesel generator system shall comply with all applicable requirements of the National Electrical Code relating to emergency and standby power systems.
- B. The diesel generator system shall conform to the applicable requirements of the following standards and authorities:
  1. NFPA - 37 "Installation and Use of Stationary Combustion Engines and Gas Turbines"
  2. NFPA 110 "Emergency and Standby Power Systems"
  3. ANSI/NEMA Standards MG-1 and MG-2
  4. Diesel Engine Manufacturer's Association (DEMA)
  5. Electrical Generating Systems Marketing Association (EGSMA)
  6. Environmental Protection Agency (EPA)

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Kohler
  2. Onan/Cummins
  3. Caterpillar

## 2.2 ENGINE

- A. Diesel fueled, compression ignition firing (“in-line” for under 600 KW and "vee" for 600 KW and above) type cylinder arrangement, 1800 RPM, water cooled with unit mounted radiator, jacket water heaters, mounting frames, and spring-type vibration isolators.
- B. The engine shall be specifically designed to operate using #2 diesel fuel.
- C. Engine shall be fully equipped with fuel, lube oil and air intake filters; lube oil coolers; fuel transfer pumps; fuel priming pump; flexible fuel lines; service meter; gear driven water pump; unit mounted instruments including a water temperature gauge, and lube oil pressure gauge; service indicators for air cleaner and fuel filter.
- D. Provide and install a skid mounted, sub-base located diesel fuel storage tank of steel construction with a capacity to operate generator a period of 72 hours at 100% load. This fuel tank shall support the full weight of the unit. The tank shall be internally coated with corrosion inhibitor, and externally painted to match overall unit color. The fuel tank shall be equipped with a visual fuel gauge, 2 inch (50 mm) fill connection, full flow breather vent, and tank drain located at the opposite end to the fill connection. All piping connections to the equipment shall be made with flexible connectors. Provide a level switch for low level alarm circuitry.
- E. Engine exhaust silencer shall be critical zone type, side inlet, inline outlet, flanged inlet and outlet connections to match engine exhaust outlet flanges, and flexible stainless exhaust connection section between engine and silencer.
- F. Governor shall be electronic type, isochronous with manual and automatic speed control. Governor shall be capable of +/- 0.25% steady state frequency regulation. Speed shall be sensed by magnetic pickup off the engine flywheel.
- G. Unit-mounted radiator, blower fan, engine-driven water pump, thermostat and radiator duct flange shall be provided. The cooling system shall cool the engine in a 125°F (52°C) ambient with up to 0.5 inches (13 mm) of water static pressure on the fan.
- H. Shut-off devices and circuitry for high water temperature, low oil pressure, engine overspeed, engine overcrank, and high oil temperature shall be provided.
- I. Jacket water heaters rated at 208/240V, 1-phase, with automatic thermostats shall be provided.
- J. Provide summary alarm contacts (1 N.O. and 1 N.C. rated 10 amperes, 120 VAC) to operate on any one or combination of the following alarms: low oil pressure, high water temperature, overcrank, engine-generator control switch not in automatic and low DC voltage.

### 2.3 STARTING SYSTEM

- A. Starting system shall be 24 volts DC, with positive engagement starting motor mounted on the engine.
- B. The starting system shall include fully automatic and manual start-stop features. The system shall include overcrank lockout and shut down after five (5) ten-second cranking periods.
- C. Provide 24 VDC lead-acid battery, heavy-duty diesel engine starting type. Battery shall be rated not less than 220 AH and shall provide 120 seconds of cranking power for the engine at the lowest ambient temperature to be encountered. Provide epoxy-treated steel battery rack, intercell and interior connectors, lugs and cables.
- D. Battery charger shall be mounted, in a NEMA-3R enclosure, with float and equalizing charge rates to match battery manufacturer's requirements to maintain proper charge condition, current limiting with overload protective devices, silicon diode full wave rectification, voltage surge suppressor; DC ammeter and voltmeter (+/- 5 percent), fuse protected 120 volt single phase AC input, minimum 10 amp output. Provide low DC voltage alarm relay with one N.O. and one N.C. alarm contact.

### 2.4 GENERATOR

- A. The generator shall be rated 60 KW, 75 KVA at 0.8 power factor, 480/277 volts, 60 HZ at 1800 RPM.
- B. The generator shall be a three-phase, single bearing, 54°F (130°C) rise, synchronous type built to NEMA standards. Class F insulation shall be used on the stator and rotor, and no materials which will support fungus growth shall be used. The generator shall include a resettable protector for exciter/regulator protection against extended low power factor loads, and two-level heat detectors.
- C. A generator-mounted, exciter/regulator shall be provided to match the characteristics of the generator and engine. Voltage regulation shall be plus or minus 1/2% from no load to full rated load. Readily accessible voltage drop, voltage level, and voltage gain controls shall be mounted on the regulator. Voltage level adjustment shall be a minimum of plus or minus 10%. The solid-state regulator module shall be shock-mounted and epoxy-encapsulated for protection against vibration and atmospheric deterioration.
- D. Generator shall be wye connected with an overspeed capability of 125% and less than 5% wave form deviation.
- E. The generator shall be furnished with a series current boost system or a permanent, magnet exciter to force the field during short-circuit conditions. The generator shall be capable of sustaining a minimum of 250 percent rated current for ten (10) seconds under short-circuit conditions.

- F. Provide two unit-mounted, enclosed molded case circuit breakers with adjustable long time and instantaneous trip settings and a short-circuit rating compatible with the rating of the generator.
- G. Provide ground fault indication equipment. Ground fault relay shall be factory installed with a ground fault alarm lamp on the generator control panel. Provide a reset switch and test switch on the generator control panel. Provide one (1) set of form “C” contacts for remote monitoring.

## 2.5 CONTROL PANEL

- A. Control panel shall be unit-mounted using vibration isolators. All controls shall be resistant to moisture and vibration.
- B. Provide two-wire start-stop control for remote connection to ATS and local manual control. Provide three-position AUTO-OFF-RUN selector switch. In the AUTO position, start stop functions shall be controlled from the transfer switch system. In the OFF position, the unit shall not start under any conditions. In the RUN position, the unit shall start and run regardless of the status of the remote start circuit. All safety shut-off devices and circuits shall be operative in both the AUTO and RUN positions. The OFF position shall be used for reset of shut-off alarms.
- C. The control panel shall include the following instrumentation:
  - 1. Digital ammeter, voltmeter and frequency meter.
  - 2. Digital power factor meter.
  - 3. Frequency meter, pointer or digital type, +/- 2 percent, 45-65 Hz scale.
  - 4. Panel illuminating lights.
  - 5. Running time meter, 0-9999 hours.
  - 6. Battery charging meter.
  - 7. Alarm panel to indicate low oil pressure, high water temperature, overcrank, overspeed, low battery voltage, low fuel. Provide audible alarm with silence pushbutton. Alarm panel shall satisfy NFPA 110, Level 2 requirements.
  - 8. Engine start/stop selector switch.
  - 9. Output voltage adjustment.

## 2.6 REMOTE ANNUNCIATOR PANEL

- A. NFPA 110, Level 2 requirements for remote annunciation shall be satisfied by a remote mounted panel. Provide lamp test and alarm silence switches. Locate panel

in main administrative office at the location as directed by HCPS in the field.

## 2.7 UNIT ENCLOSURE

- A. Provide a weather-protective enclosure with mounted silencer for outdoor applications. Enclosure shall be constructed of steel and painted manufacturer's standard color. Enclosure shall be sound attenuated (Level 1) and shall provide a minimum of 10 dB sound reduction at 23 meters.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Contractor shall be completely responsible for installing the engine-generator in the space shown ensuring that code required working space is available around the equipment.
- B. Provide control conductors (starting circuit) between transfer switch(es) and generator(s). Coordinate with transfer switch manufacturer and generator manufacturer as required. For emergency generator applications, control conductors installed between the transfer switch and the generator shall be as follows:
  - 1. Control wire installation shall comply with NEC Article 700.10 (D)(3).
  - 2. The control conductors shall be kept entirely independent of all other wiring and shall meet the conditions of NEC Article 700.10 (D)(1).
  - 3. The integrity of the generator remote start circuit shall be monitored for broken, disconnected, or shorted wires. Loss of integrity shall start the generator(s).

### 3.2 TESTING AND CERTIFICATION

- A. After fabrication in the manufacturer's plant, an operational test shall be conducted to check out the entire system before delivery.
- B. After installation, the manufacturer shall provide the services of a competent factory based service engineer to coordinate the installation of the engine generator system. He shall assist in placing the equipment into operation and provide instruction as required to the person or persons who are delegated to operate the equipment.
- C. The manufacturer of the generator shall inspect and verify the correct installation of the generating system. All individual components including, but not limited to, the engine, generator, fuel tank, battery, battery charger, and silencer shall be checked. Power conductors and control circuits shall also be checked.
- D. The manufacturer of the generator set shall provide the services of a qualified



technician for initial start-up. Checks and services shall be conducted to prepare all equipment for start-up. All alarm circuits and safety shutdown circuits shall be checked. The technician shall follow a routine start-up procedure as recommended by the equipment manufacturer.

- E. Perform tests recommended by manufacturer and each electrical test and visual and mechanical inspection for “AC Generators and for Emergency Systems” specified in NETA Acceptance Testing Specification. Certify compliance with test parameters.
- F. NFPA 110 Acceptance Tests: Perform tests required by NFPA 110 that are additional to those specified, including, but not limited to, single-step full-load pickup test. Provide load bank as necessary.
- G. Coordinate tests with tests for transfer switches and run them concurrently.
- H. Field service must be unlimited and must continue until satisfactory system operation and customer approval has been achieved.
- I. Operating and maintenance instructions shall be provided. Instructions shall be provided in accordance with Division-26 Section, Basic Electrical Materials and Methods.
- J. The manufacturer shall warrant the equipment specified herein to be free from defects in material or workmanship. In the event any defects are discovered within 24 months from start-up or 30 months from date of delivery, the manufacturer shall perform repairs or replacement, at its own option, of any defective products at no cost to the Owner.

### 3.3 FUEL

- A. At the conclusion of the project, after all testing is complete and the generator has been accepted by the Owner, the fuel tank must be filled to capacity. All fuel consumed during testing must be replaced and the tank must be full.

END OF SECTION 263213

**Pre-Bid Meeting Attendance Sheet**  
**Roye-Williams Elementary**  
**HVAC Systemic / Plumbing Renovation Project**  
 Thursday, February 20, 2020 @ 10:00 am  
 Roye-Williams Elementary  
 201 Oakington Road, Havre de Grace, MD 21078  
**Bid Opening - Thursday, March 5, 2020 - 2:00 p.m.**  
**Harford County Public Schools Administration Building**  
**Planning & Construction Conference Room**  
**102 South Hickory Avenue, Bel Air, Maryland**

Name	Company & Address	Telephone # Fax #	Email Address
CHUCK GREBE	HCPs PLANNING & CONSTRUCTION	410-638-4211	chuck.grebe@hcps.org
Chris Montoo	HCPs Planning & Construction	410-638-4303	chris.montoo@hcps.org
Bill Brown	Upper Bay Mechanical	410-688-6000	billbrown@levelheating.com
Steve Sexton	Upper Bay Mechanical	267-716-0716	stevesexton@upperbaymechanical.com
Vance Cresic	Rule 4	243-620-6811	vancic@rule4.net
Karlo Castellanos	Homex Inc	443-635-3852	karloc@homexllc.net estimating@homexllc.net
NICK BOBES	TEMP AIR	410-356-8078	nbobes@tempaircompany.com
DAN SHANAHAN	DENVER ELEC	410 574-8400	dshanahan@denver-elek.com
KARL FAUSER	Alex Piping systems	302-433-9821	KFAUSER@ApeXPIPING.com
Ben Gilmore	Chief Custodian RWES	410-273-5536	benjamin.gilmore@HCPs.org
DAN HARLAN	BKMA & A	410-323-0600	dharlan@bkma.com

**Pre-Bid Meeting Attendance Sheet**  
**Roye-Williams Elementary**  
**HVAC Systemic / Plumbing Renovation Project**  
 Thursday, February 20, 2020 @ 10:00 am  
 Roye-Williams Elementary  
 201 Oakington Road, Havre de Grace, MD 21078  
**Bid Opening - Thursday, March 5, 2020 - 2:00 p.m.**  
**Harford County Public Schools Administration Building**  
**Planning & Construction Conference Room**  
**102 South Hickory Avenue, Bel Air, Maryland**

Name	Company & Address	Telephone # Fax #	Email Address
LARRY FRITTS	BKMA	410-323-0600	lfritts@bkma.com
Chris CURRY	Reliable Cain Heating & Cooling	443-540-7716	ccurry@reliable-cain.com
MATT SOL	BKMA	410-323-0600	msol@bkma.com
Rose Martino	RWES		Rosemarie.Martino@hcps.org
Paul Single	RWES		Paul.Single@hcps.org

BKM Project No. 19102.01  
**Bid Set**

**ADDENDUM 1**

Harford County Public Schools  
Roye-Williams Elementary School  
HVAC Systemic / Plumbing Renovation

**END OF ADDENDUM 1**